

STEEL

THE WEEKLY MAGAZINE OF METALWORKING



RAILROAD ROUNDUP

Expansion in 1953 will climb because some was side-tracked in 1952. Financing clouds further prospects—page 82



WHAT CONGRESS WILL DO IN 1953
On Controls, Taxes, Labor, p. 71



BASIC TESTING ECONOMICS
Dollars Saved Sell Process, p. 104

CONTENTS — PAGE 5



WORK ORDER

No. **E-10217**

SOLD
TO

DATE OF
ORDER

November 11, 1952

ORDERED

MATERIAL

Cold Rolled Shim
Steel Hard in Coils

SIZE

4000#

.003 x 6 $\frac{3}{8}$ " x CL
SPECIAL INSTRUCTIONS

Thickness tolerance
must be held to
.0003

RUSH Slit from 8"
stock

Must be paper wrapped
--Maximum coil
weight 350#; Maxi-
mum skid weight
3,000#

DELIVERY TOMORROW
MORNING'S TRUCK SURE

KORHUMEL STEEL & ALUMINUM CO.
2426 OAKTON STREET, EVANSTON, ILLINOIS

What did
KORHUMEL

**"PERSONALIZED
WAREHOUSE
SERVICE"**

Mean in the Case
of Order...

No. E10217?

STEEL

Cold and Hot Rolled
Strip and Sheet
Spring Steel, Tempered
and Annealed
Feeler Gauge
Round Edge Flat Wire
Shim Steel
Electro Galvanized
Electrical Sheets
Tin Plate
Cold Finished Bars
Tubing, Seamless, Welded
Rigidex Stainless
Hydraulic Tubing

ALUMINUM

Strip and Sheet
Coils
Straight Lengths
Bars

PHOSPHOR BRONZE

Coils and Flats

SERVICES

Slitting
Shearing
Edge Rolling
Bright Annealing
Cold Rolling
Ungerer Roller Leveling



KORHUMEL
Steel & Aluminum Co.

2426 OAKTON STREET, EVANSTON, ILLINOIS

Warehouses or Sales offices in Bridgeport • Cincinnati • Detroit • Grand Rapids • Los Angeles • Milwaukee • New York • Rockford • St. Louis

Chicago Phone: Abas
Evanston Phone:

BACK in August of last year the Korhmel sales engineer Metalworking Co., discussed just what our "Personalized Warehouse Service" could mean to them. Nothing happened until November when an unusual demand for 400 lb. Steel came up. This company's regular source could not supply the particular thickness of Steel required and the steel buyer put in an urgent call for the Korhmel Sales Engineer. With the order was being scheduled through our Evanston warehouse. The Shim Steel department supervisor checked, and found the .003 thickness in stock, but not in the particular width specified by the company. A rush order was put through the slitting department and the next morning the order was ready for shipping.

As part of the regular Korhmel "Personalized Warehouse Service" particular attention was given to the careful packaging of this order to assure absolute protection of the product in transit. From the Korhmel traffic manager took over to be sure that the order was delivered on time—as specified—simple now, but the personal attention given this order meant a lot to the particular customer.

Whether your Steel and Aluminum requirements are in ton lots or by the pound . . . run of the mill or a specialty item . . . Korhmel "Personalized Warehouse Service" can mean something "special" service. Why not talk to your Korhmel Sales Engineer and find out how this service can help you save time and money. Check your classified telephone directory . . . call him today or write us.

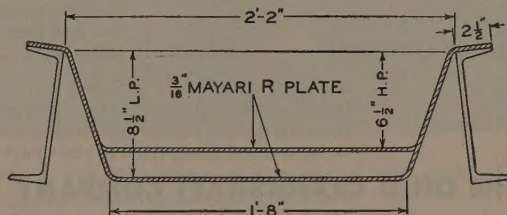
Inside Gutters 1000 ft long made of $\frac{3}{16}$ -in. Mayari R

Original inside gutters on this warehouse building in Harrisburg, Pa., failed after seven years. They could not carry away the burden of cinders and debris that accumulated during extended dry spells. The periodic cleaning that was required to open the gutters damaged the roof, causing premature leakage.

New gutters are made of $\frac{3}{16}$ -in. Mayari R. Each gutter is located in a valley between the aisles, extending the full length of the building. Installed in sections ranging from 50 ft to 70 ft in length, each gutter has specially welded expansion joints at the high points. The depth of the sections provides a 2-in. drainage from high points to low points where the rain-outlets are located.

Mayari R has certain advantages that led to its selection for this job. It is a low-alloy, high-strength steel with good resistance to impact and abrasion. It can stand up to cinders washing along its surface, or anything that may be necessary. Also, it has excellent resistance to atmospheric corrosion. Tests made in corrosive atmosphere show that Mayari R lasts 5 to 6 times as long as plain carbon steel; and 2 to 4 times as long as copper-bearing steel.

See Bethlehem Steel Catalog 259. It covers in detail the properties of Mayari R and many recommended applications.



BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

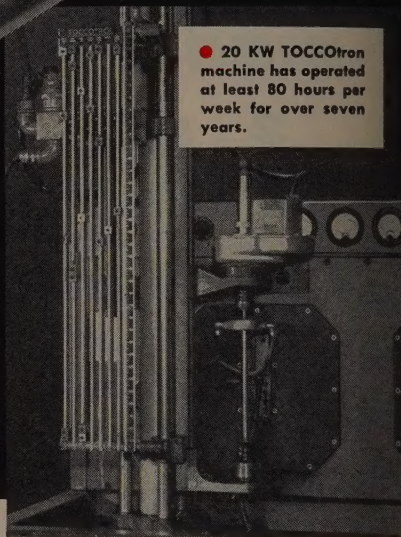
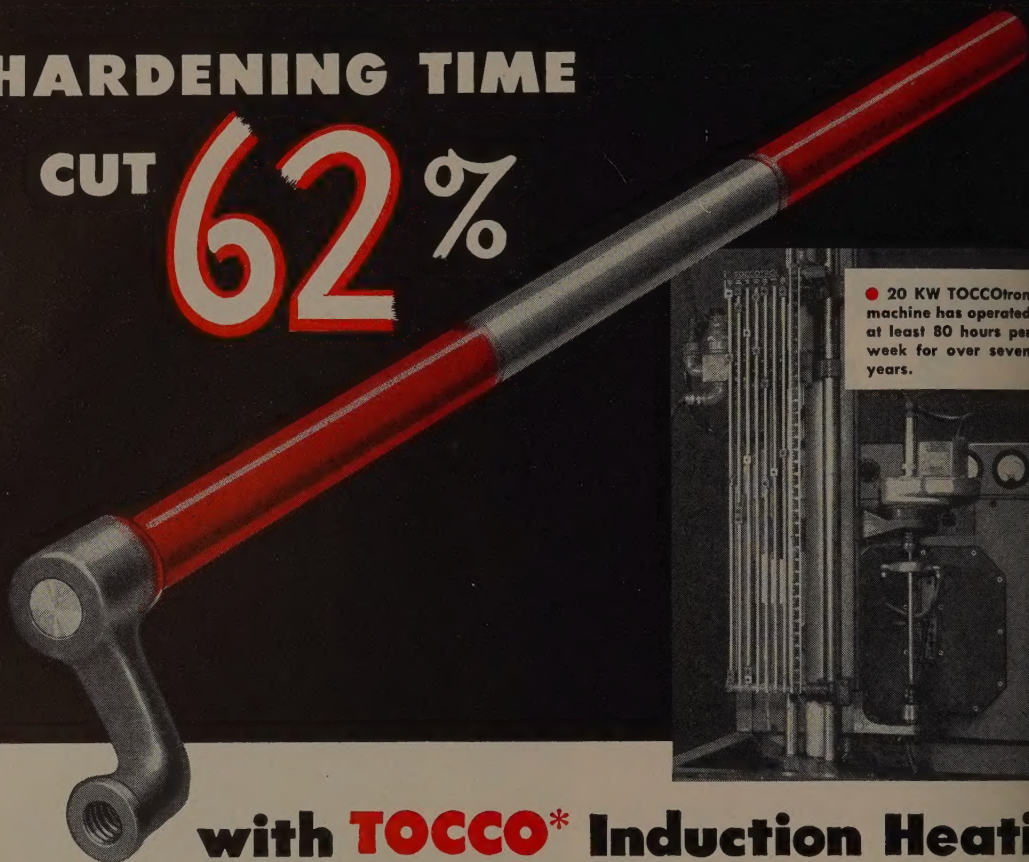
On the Pacific Coast Bethlehem products are sold
by Bethlehem Pacific Coast Steel Corporation. Ex-
port Distributor: Bethlehem Steel Export Corporation



Mayari R *makes it lighter... stronger... longer lasting*

HARDENING TIME

CUT 62%



• 20 KW TOCCOtron machine has operated at least 80 hours per week for over seven years.

with TOCCO* Induction Heating

When minutes saved mean dollars earned, look to TOCCO Induction Heating

• Singer Manufacturing Co., makers of famous Singer Sewing Machines, reports the following results when they switched to TOCCO—hardening the shaft assemblies shown above. Note the operations eliminated through the use of TOCCO and the savings of 151.8 minutes per 100 parts.

OLD METHOD		TOCCO METHOD	
Operation	Min./100 Pcs.	Operation	Min./100 Pcs.
Assemble on plating racks . .	23.0	eliminated	
Copper plate crank end . . .	43.0	eliminated	
Remove from plating racks . .	15.0	eliminated	
Harden shaft and		TOCCO harden	
anneal crank	120.0	and clean	92.5
Strip lead	10.0	eliminated	
Strip copper and clean	33.3	eliminated	
Old method		TOCCO method	
total time	244.3 minutes	total time	92.5 minutes

Have you investigated TOCCO's time and cost savings possibilities for your hardening, brazing, forging or melting operations? It will pay you to write or send blueprints of your parts for analysis—no obligation of course.

THE OHIO CRANKSHAFT COMPANY

NEW FREE BULLETIN

Mail Coupon Today

THE OHIO CRANKSHAFT CO.
Dept. W-6, Cleveland 1, Ohio

Please send copy of "Typical Results of TOCCO Induction Hardening and Heat Treating"

Name _____
Position _____
Company _____
Address _____
City _____ Zone _____ State _____



TOCCO

*Trade Mark Reg.
U. S. Pat. Off.



OSBORN

**Osborn has been cutting
foundry molding costs for 43 years!**

HOW

FACTORY SALES through experienced
dry-trained Osborn molding field special-
ists who *spend all their time* on foundry appli-
cations.

ROUGH ENGINEERING of your require-
ments by foundry engineers backed by 43
years' experience serving the industry.

PRECISION MANUFACTURE of tomorrow's
dry Molding Machines and Core Blowers
in modern plant using modern manufacturing
methods assures *fast accurate mold production*.

PERMANENT RESEARCH that has pioneered the
industry's major improvements in more effi-
cient, lower cost molding and core blowing.

INVESTIGATE NOW. Have Osborn's repre-
sentative check your requirements to see
if production can be improved and costs
reduced. Call or write *The Osborn Manufacturing
Company, Dept. EE-1, 5401 Hamilton Avenue,
Cleveland 14, Ohio.*



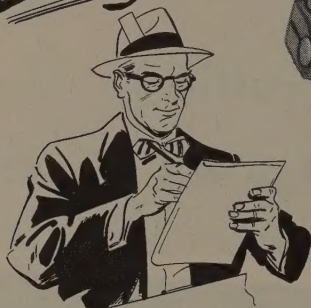
HERE'S PROOF. *Production increased 75% at this foundry
through Osborn's mechanical devices.*

Serving the Foundry Industry for 43 Years

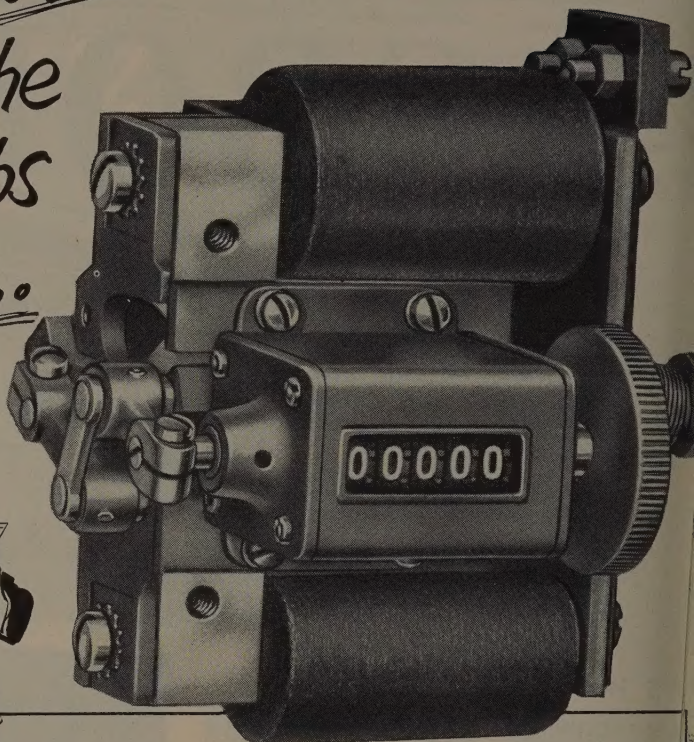
Osborn Molding Machines

DING MACHINES . . . CORE BLOWERS . . . INDUSTRIAL BRUSHES

*This
Electrical Reporter
Stays on the
Tough Jobs
Longer...*



Added Evidence
that _____



Everyone Can Count on VEEDER-ROOT

Compact and rugged . . . this electrically operated reset counter is specially designed for tough jobs that demand longer counter life.

Here's another instance of the *infinite applicability* of Veeder-Root Control — electrical, mechanical or manual. And here's another instance, too, of the endless resourcefulness of Veeder-Root engineering, and the ability to design a *complete*

counting package that fits the job fully and exactly. Now . . . what's *your* problem?

VEEDER-ROOT INCORPORATED

"The Name That Counts"

HARTFORD 2, CONNECTICUT

Chicago 6, Ill. • New York 19, N.Y. • Greenville, S.C.
Montreal 2, Canada • Dundee, Scotland
Offices and Agents in Principal Cities



✓ NEWS ✓ PRODUCTION-ENGINEERING ✓ MARKETS

✓ Metalworking Outlook	63
As the Editor Views the News	67
Editor-in-Chief E. L. Shaner views and reviews some significant political and industrial developments	
Windows of Washington	78
Mirrors of Motordom	85
Now that new models are out, motordom settles down to the job of matching materials supply with demand	
The Business Trend	89
Men of Industry	93
✓ Production-Engineering News at a Glance	99
Conveyor Boosts Press Production	100
Synchronizing conveyor and press cycle boosted total production 48 per cent. More safety, less operator fatigue	
Foundry Facilities Molded to Production	102
Deliveries are up 220 per cent after this company streamlined its operating techniques	
Testing Brightens Profit Picture	104
Selling nondestructive testing isn't an easy chore if the accurate cost figures aren't thoroughly explored	
Progress in Steelmaking	112
Continuous Forge Rolls Up Wheel Records—Single-heat process turns out 60 units per hour	
New Products and Equipment	149
✓ The Market Outlook	167
Metal Prices and Composites appear on Page 168	
The Metal Market	179

Behind the Scenes	6	Obituaries	96
Letters to the Editors	10	Calendar of Meetings	147
Subcontract Summary	76	Helpful Literature	163
Checklist on Controls	77	Metalworking Briefs	189

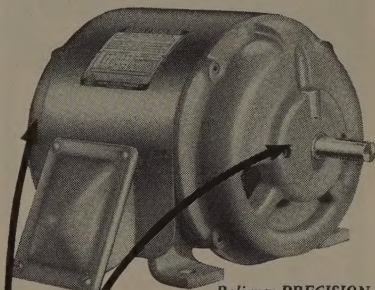
itorial, Business Staffs 16. Advertising Index 195. Editorial Index available semi-ally. STEEL also is indexed by Engineering Index Inc., 29 West 39th St., New York 18.

ed every Monday by the Penton Publishing Company, Penton Building, Cleveland 13, Ohio. tion in the United States and possessions, Canada, Mexico, Cuba, Central and South a, one year \$10; two years \$15; all other countries, one year \$20. Single copies (current 50 cents. Metalworking Yearbook issue \$2.00. Entered as second class matter at the ce in Cleveland, under the Act of March 3, 1879. Copyright 1953 by Penton Publishing Co.

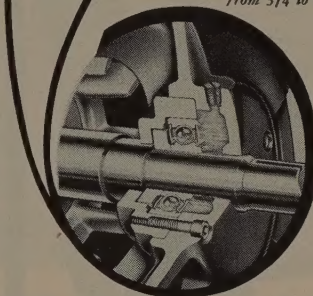
Pre-lubricated Bearing Design

in
RELIANCE MOTORS
provides

**more operating hours
without re-lubrication!**



Reliance PRECISION-BUILT A-c. Motors from 3/4 to 300 hp.



Reliance Bearing Design, including extra-large grease reservoir, provides longer bearing life.



Original, factory lubrication permits more operating hours without re-lubrication than that of any other pre-lubricated bearing.

From a larger grease reservoir than provided with any standard bearing, Reliance double-shielded bearings automatically take on new grease as needed. And the Reliance design not only keeps bearings lubricated, but makes it impossible to overgrease a Reliance Motor. Get the convenient chart on which you can check these and other features which combine to give you 15 important advantages in the Reliance Pre-lubricated Bearing Design... write today for Bulletin B-2201.

Sales Representatives in Principal Cities

RELIANCE
ELECTRIC AND
ENGINEERING CO.

1081 Ivanhoe Road • Cleveland 10, Ohio

"All Motors are NOT Alike"

5 REASONS WHY

Pannier

"MASTER MARKER" SUPREME STAMPING HOLDERS are preferred

1 REPLACEABLE STAMPING HEAD

Increases holder life; will not mushroom or spall

2 ONE PIECE BODY

High-grade bar foot steel; no rivets or welded joints

3 TYPE KEY

Single bar simplifies type insertion; locks type in place

4 HARDENED ANVIL

Prevents wear; assures constant type alignment

5 STEEL TYPE

Famous job-proved Pannier "Master Marker" quality

Supreme Holder stamps multiple characters in hot or cold metal with one easy operation. Write for details of styles and sizes available.

OFFICES:

Pittsburgh Chicago Youngstown
Jacksonville Los Angeles Philadelphia

EXPORT DEPT.: Bessemer Bldg., Pittsburgh, Pa.

THE PANNIER CORPORATION

220 PANNIER BUILDING

Pittsburgh 12, Pa.



Behind the Scenes...

Hot Potato

The flood of requests that have come in for copies of the Specifications Handbook is really fabulous. Everyone was sure that this Cross-Index was a hot potato but even the bright-eyed optimists around the place are starting to gape. Cards, letters, wires, telephone calls, continue to pile in and what looked like an adequate press run is fast disappearing. If you haven't done something about getting your copy, better use one of the insert cards in this issue. The Handbooks are being delivered from the printer this week and should be in the mail to you pronto if you have already sent in your request.

How Do You Feel?

Gulp! We've just done a bit of calculating and to say the least, things don't look so good, either for you or for us. Excuse us while we adjust our *black tie*, but do you know that during the last four years of the Truman administration the life expectancy of metalworking executives actually shrunk? Back in 1949, Earl Shaner ran back through all the obits reported in STEEL for that year and found that the average age at death of metalworking men was 64.2. Well, that didn't seem too bad, especially when *Advertising Age* magazine reported that in 1951 the average age at death of advertising and publishing executives was a meager 57. A recheck of STEEL's obituaries in 1951 showed that the average age of metalworking executives who died during the year had shrunk to 63.3 years, and now the picture for 1952 is gloomier still. During the last twelve months the average age of metalworking executives at death has gone down to 62.4. You might be interested to know however, that they ranged all the way from a youthful 26 to a ripe 96, so don't despair.

Quote and Unquote

Helen Laughlin, business manager Jim Zuber's girl Friday, is having problems. She has been on an exploratory safari all over the eighth floor hunting filing space for a bushel basket full of newspaper clippings . . . all of them quoting STEEL magazine. The clips are from papers in every state across the country and

represent only those sent through the Burrelle Clipping Service during 1952. However, the 1953 crop is beginning to come through so the ones have to go. Just to give you an idea of how many Helen is trying to find space for, we asked statistician George Auner to warm up his stick and do some calculating. It allows as how they would cover a square foot office table and stand a foot high. And that's a powerful quote!

Favored Magazine

It is not often in this business you are as touched emotionally as we were last week in receiving the letter from Winter Park, Florida.

Dear Sirs:

My late husband was a subscriber to STEEL long before and I were married. He was with the Republic Iron and Steel Company for many years as a furnace superintendent. I felt it was my duty to become interested in his business, so for more than thirty-two years I have looked through your magazine, missing very few issues in the time. Perhaps even you don't realize how the magazine has changed, improved in readability and attractiveness, with the passing years. My husband considered it invaluable, even long after he retired from active work in the steel industry. I shall continue to read it until the expiration of his subscription. He died August 8, 1952.

Yours sincerely,

Mrs. W. D. Moore

A life subscription to STEEL has just been entered for Mrs. Moore.

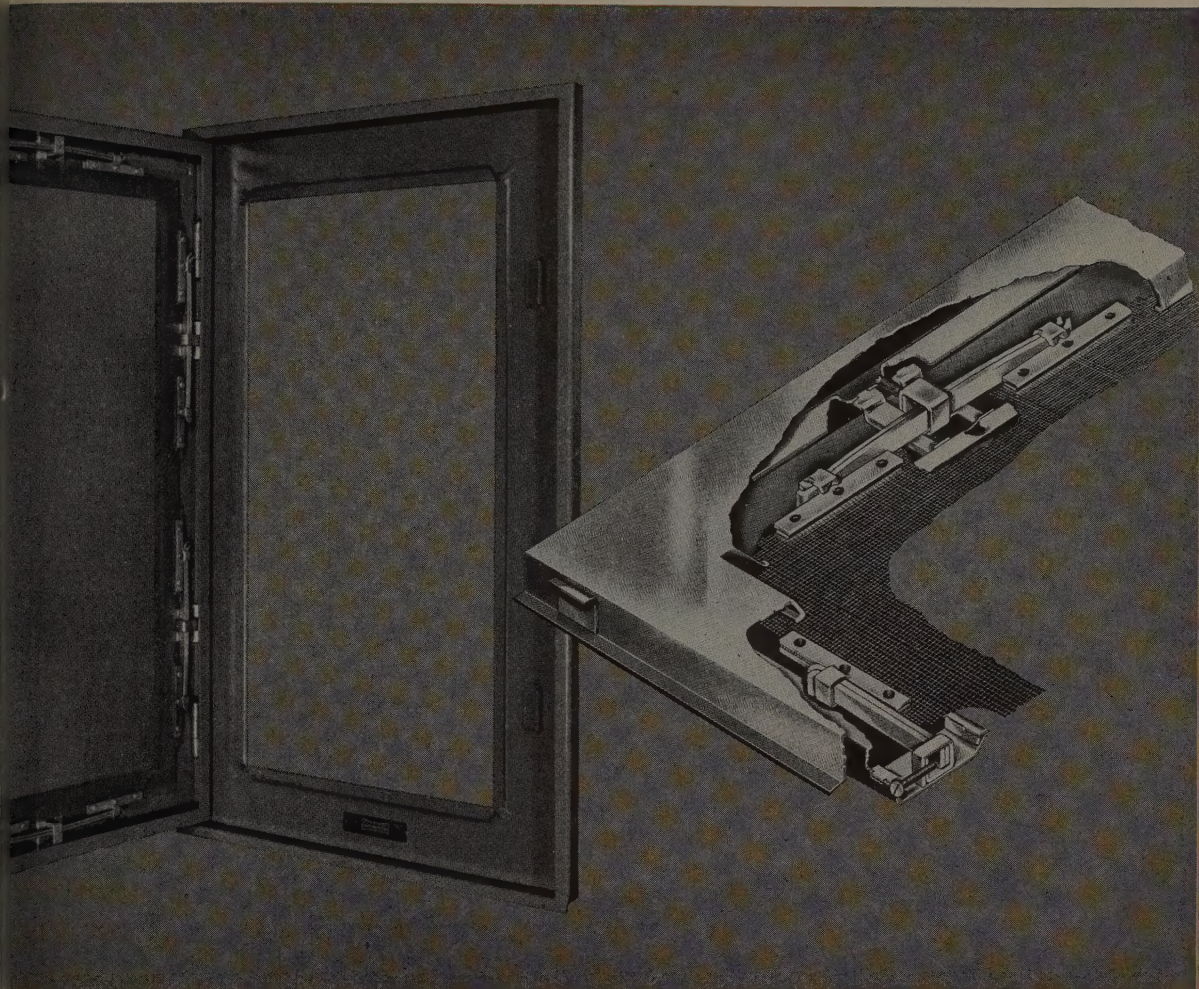
Puzzle Corner

There wasn't enough room last week to squeeze in a puzzle nor could we report that 2519 bottle caps were right answer for January 19. The crack at this one:

If an Army 40 miles long and 40 miles while Sam, a dispatcher travels from the rear to the front, delivers a message to Al, and returns to the rear, how far does Sam travel?

Shred

SHARON STEEL



's Window Construction that's Different

are primarily built to di-
thing but the sun, air and
re are concerns, however,
d windows primarily to
scape. They are detention
and find their market in
prison hospitals. They re-
cial construction to give
strength to resist the at-
both men and weather,
ecial design that discour-
pering.
ard, rust-resistant steels,

such as Sharon Galvanite*, are
used in the frames. Tough stainless
steel screening is firmly gripped by
strong spring steel fingers. Here
Sharon high carbon spring steels
are used to accomplish that never-
tiring hold that eliminates the pos-
sibility of screen removal. Moldings
and exterior trim, subject to the
ravages of weather,
utilize the best
weather-beater of
them all—Sharon
Stainless Steel.



If you're making windows, or any
product that requires quality steels,
or if your needs are for standard
hot or cold rolled steels, and you
want the finest, specify SHARON
all the way.

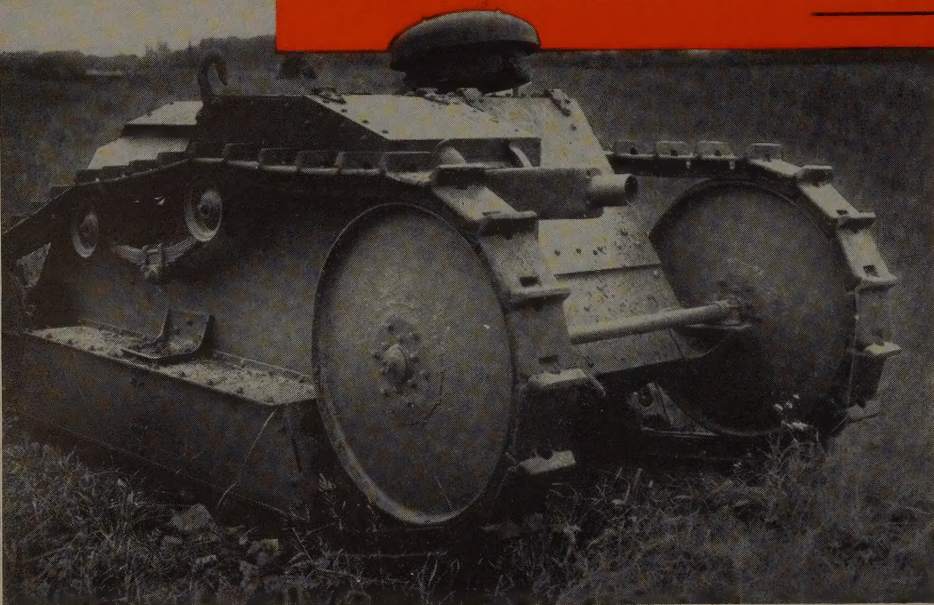
* T.M.

DISTRICT SALES OFFICES

Chicago	Cincinnati
Cleveland	Dayton
Detroit	Indianapolis
Milwaukee	New York
Philadelphia	Rochester
Los Angeles	San Francisco
Montreal, Que.	Toronto, Ont.

SHARON STEEL CORPORATION *Sharon, Pennsylvania*

FROM MINIATURES



This three ton tank was produced in 1918. It accommodated two men, a driver and a gunner, sitting side by side. Armament consisted of one 0.30 caliber machine gun with arc of fire 21 degrees, vertical arc, 15 degrees. Power to drive the tank was provided by two engines, 45 H.P. total. A planetary gear transmission having two forward speeds and one reverse was provided. Maximum speed was 8 m.p.h. the fuel range was 34 miles. Dimensions were: length 10 ft., 8 in.; width 5 ft., 6 in.; height 5 ft., 3 in.



EVERY FACILITY
FOR PRODUCING

**ARMOR
PLATE**

for Ordnance ...

TO MONSTERS

Standard Steel Spring Company Has Always Been An Integral Part of Tank Production

Standard Steel Spring Company has served every National emergency since the inception of the tank in the capacity of key producer and coordinator for Ordnance Department armor plate programs. Today, more than ever before, our talents are devoted to the cause of speedy, efficient re-armament. To this end we have brought together a large, integrated group of subcontracting plants, staffed and equipped to turn out tank armor plate in huge volume. We work with our

customers to design the parts for the most economical production, to efficiently tool for them, to expedite delivery and to carefully inspect so as to maintain exacting quality standards.

Our facilities are complete, our schedules flexible. Whatever your needs for flat or formed armor plate—fully machined and even sub-assembled if desired, we at Standard Steel Spring Company are ready to serve you.

Standard Steel Spring Company

ARMOR PLATE DIVISION • PENOBSCOT BLDG. • DETROIT, MICH.



Ready to Assemble in Gauges from 1/4" to 4" inclusive



The above macrograph offers visual proof of the uniform grain flow characteristics in a carriage bolt made from Keystone "Special Processed" Cold Heading Wire. The continuous, strength-giving flow lines are a sure sign of efficient cold heading which results in longer die life, increased production and a better finished product.

The following analysis of "special processed" wire is recommended for difficult cold heading:

- C1006 - C1012 for Clutch Heads
- C1006 - C1022 for Phillips Heads
- C1108 - C1109 for Phillips Head Wood Screws
- C1035 - C1038 for Heat Treated Screws and Bolts

Keystone is prepared to help solve any of your industrial wire problems. Your inquiry is welcomed.

INDUSTRIAL WIRE SPECIALISTS

Keystone Steel & Wire Company
PEORIA 7, ILLINOIS



LETTERS

TO THE EDITORS

Yearbook Scores a Point



Permit me to add my compliments to the hundreds of others which you undoubtedly have received concerning the January 1953 Yearbook issue of STEEL. It is an exceptionally well organized and complete volume full of the type of vital information which a supplier to the metalworking industries needs to make place for its significant position of our industrial economy. Your editorial, as usual, is inspiring, challenging and right to the point.

D. M. Conner
Manager, Market Extension
Brown Instruments Division
Minneapolis-Honeywell Research Corporation
Philadelphia

Scrap Story Rates as Fine

One of our men, who should be commended for his article "More Scrap for Steel" (Jan. 12, Insert) is the finest writer on the subject he has seen in a long time and he would like six copies. If it's that good, we will probably make a management request also, so could you make it eight copies please?

F. M. Wagoner
Timken Roller Bearing Company
Canton, Ohio

• They're on the way. Eight of them. ED.

A New Spiritual Force

I have always found your editorial stimulating reading, and particularly so in the Jan. 5 issue.

There is a new spiritual force at work throughout the nation which, it is hoped, will be effective in correcting some of the deplorable situations which have caused such consternation in the past.

The selection of Mr. Dirken as secretary of labor was no doubt made after careful deliberation. We believe it is the aim of the administration to make the labor movement come of age, as a responsible body with its first obligation to the citizens as a whole, conducted on the same level as any other private enterprise.

There is great hope everywhere for the establishment of a fair and workable labor policy, backed by laws that will assist in creating a much needed improvement in relations among the people, labor and management.

However, many smaller manufacturers and some large ones, are worried by this new policy will be designed by the industry representatives who are also in the industry members and whose organizations

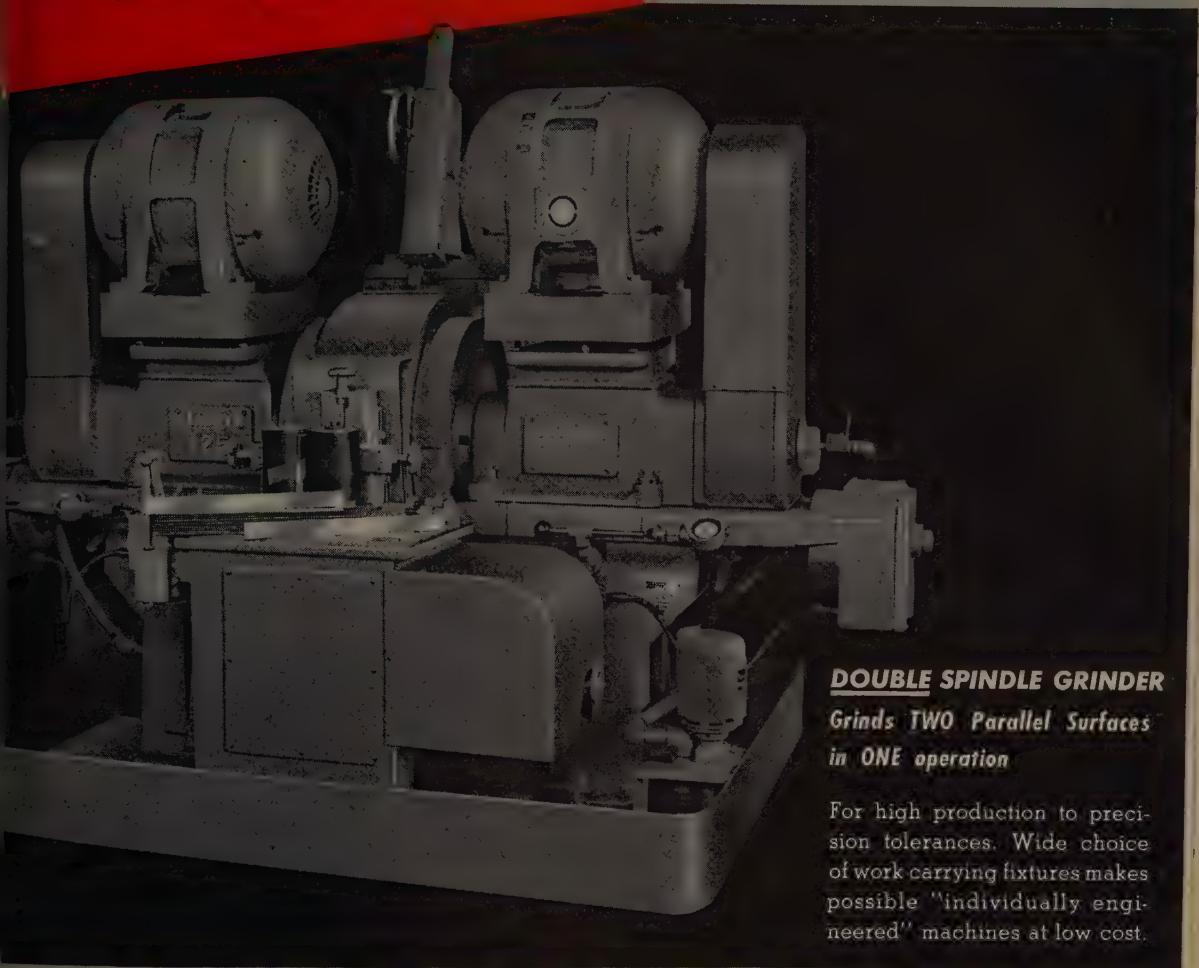
Continued on following page

GARDNER

*precision
disc*

Grinders

**Three Machines
That Will Reduce
Your Flat Surface
Grinding Costs**

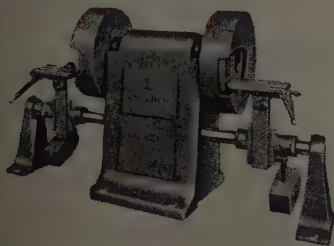


DOUBLE SPINDLE GRINDER

*Grinds TWO Parallel Surfaces
in ONE operation*

For high production to precision tolerances. Wide choice of work carrying fixtures makes possible "individually engineered" machines at low cost.

SINGLE SPINDLE GRINDER



Gardner No. 226-26" Standard Single Spindle Grinder with hand-operated lever tables on each end. A general purpose machine with wide industry applications.

HORIZONTAL DISC GRINDER

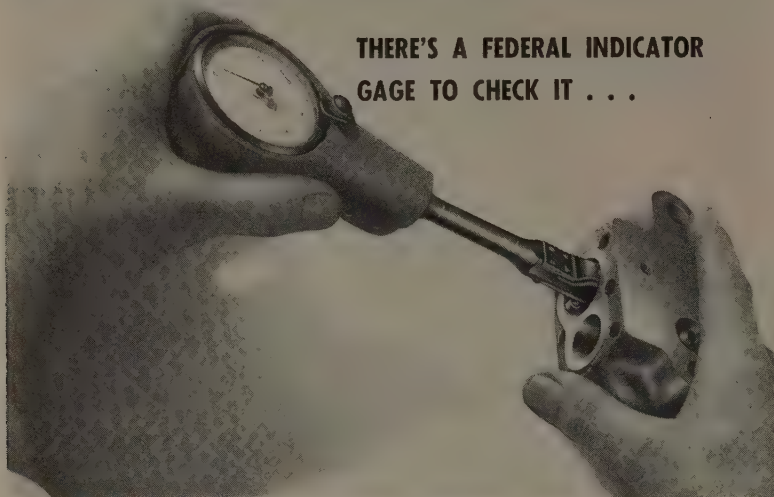


Gardner No. 124-53" Horizontal Disc Grinder used for grinding a flat surface on castings and weldments in a wide variety of sizes and shapes.

No. 119M

GARDNER MACHINE COMPANY

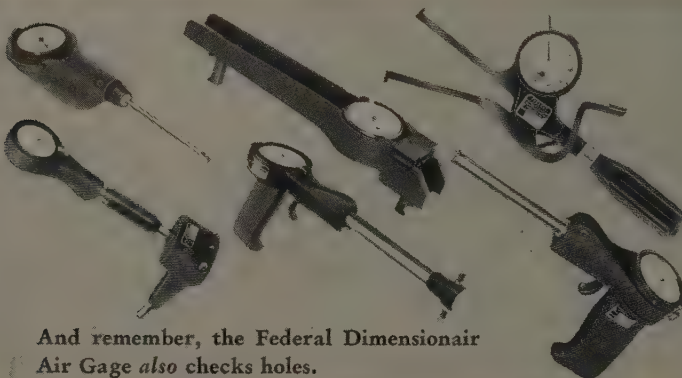
Whatever the Hole Condition...



**THERE'S A FEDERAL INDICATOR
GAGE TO CHECK IT . . .**

Whether a hole is deep or shallow, narrow or wide, whether it's difficult to get at, recessed or irregular, there's a Federal Indicating Gage to check it conveniently, and to precisely the dimension limits you require. With a Federal Gage you can inspect a hole as small as .122" and as large as — well, you tell us how big!

Each of the gages below is built to fit certain gaging limitations better than any other gage. You can find how useful they can be to you by sending in the coupon below.



And remember, the Federal Dimensionair Air Gage also checks holes.



FEDERAL

Largest manufacturer devoted exclusively to designing and manufacturing all types of DIMENSIONAL INDICATING GAGES

*Fill in and
mail this
coupon!*

FEDERAL PRODUCTS CORPORATION

1212 Eddy Street, Providence 1, Rhode Island

Please send me information on a hole gage for the following job:

☐ Sketch ☐ Blueprint is enclosed showing dimension we wish to gage.

NAME

COMPANY

STREET

CITY STATE

LETTERS

Concluded from preceding page

long ago forfeited to the unions privilege of dealing directly with employees. They wonder whether the policy will take into consideration need for legislation which will protect employees who have fared well under system of bargaining individually directly with their employers, and do not wish to become union members. Is the new administration aware of pressure which has been and is brought to bear on many enterprises and the attacks made on free business men by union organizers?

Many have found the struggle wearing and have succumbed, abandoning the best interests of their employees and their company in the process.

Smaller manufacturers earnestly hope that the government will remember in its labor program, and take measures to insure to every employee and employer the right to decide whether or he wishes to deal with a union. I time for union practices to assume more mature and democratic aspects.

Rene D. Wasse,

president
Eutectic Welding Alloys Co.
Flushing, N. Y.

Big Difference in Carbon



On p. 225 of your Jan. 5 issue, I briefly comment upon our Mr. G. Luerssen's statement on a new state steel with reduced work-hardening characteristics. I would like to call attention to an error in setting this copy where you show carbon content as 0.8 per cent and where Mr. Luerssen's letter shows accurately as 0.08 per cent.

That difference in carbon is considerable.

A. E. J.
advertising manager
Carpenter Steel
Reading, Pa.

• Thank you for pointing out this graphical error.—ED.


Pattern for Steel Storage

In your Dec. 29 issue of STEEL attention was taken by an article, "Warehousemen Prepare for Business Market" (p. 43). In heading this article you used a picture of steel stored in a warehouse in a manner similar to what we are attempting to do in a new shed.

We would appreciate it very much if you could advise us as to the correct name of this warehouse so that we can get in touch with them.

A. F. Dunlap
plant manager
Lewis-Shepard
Watertown, N. Y.

• The photograph was of Jones Laughlin Steel Corp.'s Pittsburgh warehouse.—ED.



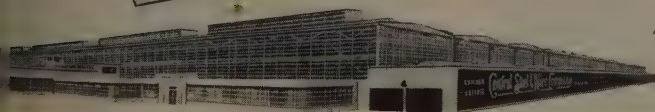
STRUCTURALS?
BARS?
PLATE?

call
CENTRAL STEEL

AND WIRE COMPANY

*for fast, dependable service
anywhere in the midwest...*

- All materials cut to your exact specifications
- All materials available at published prices
- No order too small to receive prompt, careful attention



• Cold Finished
• Alloy • Stainless
• Brass • Aluminum
• Metal • Structurals

Central Steel & Wire Company

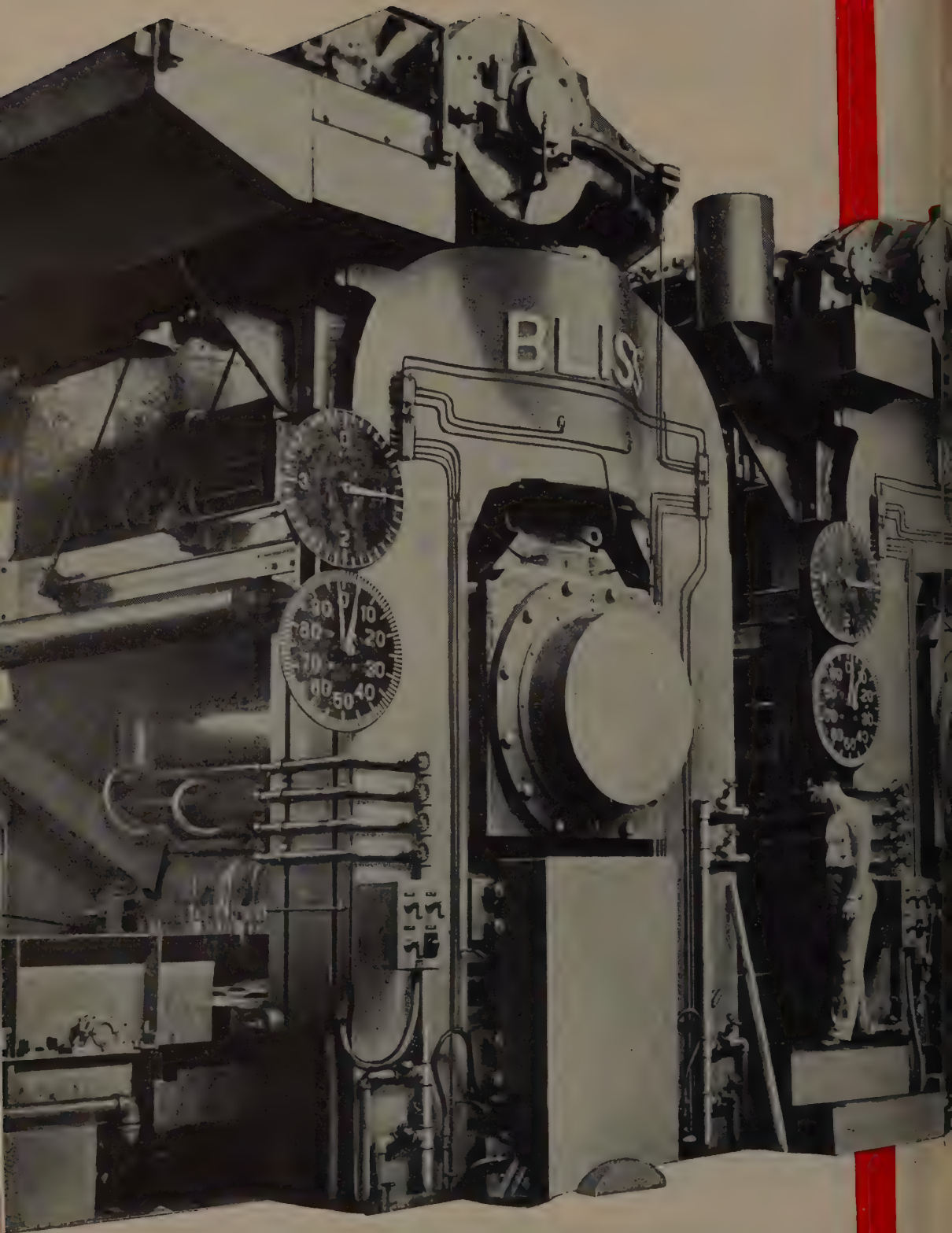
PLANTS AND OFFICES

CHICAGO 80, ILL.
P. O. Box 5310-A
REpublic 7-3000

DETROIT 12, MICH.
13400 Mt. Elliott Ave.
TWinbrook 2-3200

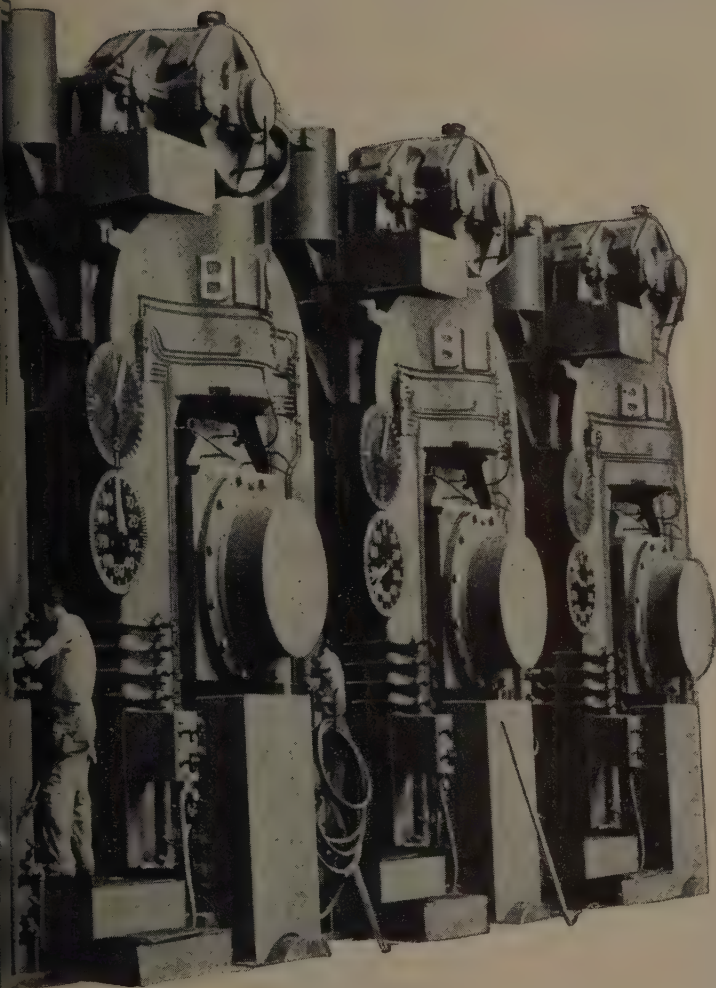
CINCINNATI 14, OHIO
Box 148 Annex Sta.
AVon 2230

MILWAUKEE 14, WIS.
6623 W. Mitchell St.
EVergreen 4-7400



Remember: for Presses, ROLLING MILLS
and Special Machinery... **It's BLISS!**

BLISS Mill rolls 2,000,000 lbs. of aluminum in eight hours for Reynolds Metals Company



Here's another Bliss rolling mill installation whose *performance* speaks for itself.

For several years a Bliss five-stand, four-high 80" tandem mill has been hot-rolling huge quantities of aluminum sheet at the McCook (Ill.) plant of Reynolds Metals Company.

This leading aluminum producer has rolled as many as 570 ingots on the Bliss mill in an eight-hour shift. Maximum production, poundage-wise, has exceeded 2,000,000 lbs. in one shift.

The mill is now processing all the material produced on Reynolds' 120" and 96" ingot and slab breakdown mills. Average delivery gage is .120" with a maximum speed of 850 fpm, and minimum width is approximately 24". Ingot starting sizes vary from 10" x 30" to 16" x 48".

Like Reynolds, other major processors of aluminum, steel and brass are using Bliss rolling mills to step up plant efficiency and boost vital metal production. You, too, will find it's wise to take your metal-rolling problems to Bliss. Get a complete picture of the Bliss line of mills and accessories. Write for our 52-page brochure, Bulletin No. 40

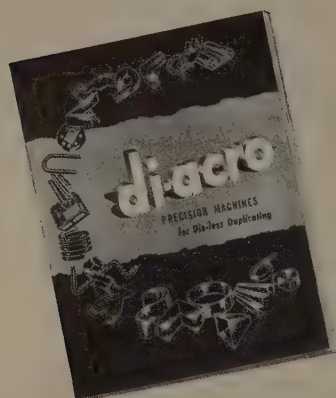
**E. W. BLISS COMPANY, General Office: Canton, Ohio
ROLLING MILL DIVISION: SALEM, OHIO**

E. W. Bliss (England) Ltd., Derby, England

E. W. Bliss Company (Paris), St. Ouen sur Seine, France

Branch offices in Chicago, Cleveland, Dayton, Detroit, Indianapolis, New Haven, New York, Philadelphia, Toledo, Rochester, and Toronto, Canada. West Coast Representatives: Moore Machinery Company, Los Angeles and San Francisco; Star Machinery Company, Seattle. Other dealers in United States cities and throughout the world.

Request Your Copy Now!



New catalog shows how

**"DIE-LESS DUPLICATING"
SAVES TOOLING COSTS,
SPEEDS PRODUCTION**

New 32-page catalog, chock-full of operating photographs, shows the wide variety of parts that can be formed and fabricated—often without the use of dies—by Di-Acro Metalworking Machines. Gives complete machine specifications and material capacities on 36 hand and power operated models in handy reference tables. Explains Di-Acro Engineering Service—it has helped solve many problems. Write for your copy now.

Di-Acro is pronounced Die-ack-ro. It is the registered brand name for both hand and power operated Di-Acro Benders, Brakes, Notchers, Punch Presses, Rod Parters, Rollers, and Shears.



**PRECISION
METALWORKING
MACHINES**

O'NEIL-IRWIN MANUFACTURING CO.
304 8th Avenue • Lake City, Minnesota

STEEL

The Weekly Magazine of Metalworking

Editor-in-Chief, EARL L. SHANER

Editor, IRWIN H. SUCH

Managing Editor, WALTER J. CAMPBELL

Assistant Managing Editors, VANCE BELL, JOHN S. MORGAN

News and Markets

WM. M. ROONEY.....Market Editor
FRANK R. BRIGGS.....Associate Editor
ARTHUR W. ZIMMERMAN.....Assistant Editor
JOHN KELSEY.....Assistant Editor
ROBERT O. JAYNES.....Assistant Editor
ROBERT M. LOVE.....Assistant Editor
H. VAN YORCK CALDWELL JR. Assistant Editor
MARY T. BORGERHOFF.....Assistant Editor

Engineering and Production

EDWIN L. KARPICK.....Engineering Editor
ALLEN G. GRAY.....Technical Editor
J. D. KNOX.....Steel Plant Editor
ROBERT F. HUBER.....Machine Tool Editor
WM. R. WOLFE.....Assistant Editor
THOMAS F. HRUBY.....Assistant Editor
DOLORES K. MAILLE.....Assistant Editor
NANCY SHAFFER.....Editorial Asst.

Resident Editors

New York 17.....60 East 42nd St.
B. K. PRICE, L. E. BROWNE
SAMUEL W. BAKER
Murray Hill 2-2581
Chicago 11.....520 North Michigan Ave.
E. F. ROSS
Whitehall 4-1234
Pittsburgh 19.....2837 Koppers Bldg.
ROBERT E. HALL
Atlantic 1-3211
Detroit 2.....6560 Cass Ave.
FLOYD G. LAWRENCE
Trinity 5-3024
Washington 4.....1123 National Press Bldg.
E. C. KREUTZBERG
Executive 6849
London, 2 Caxton St., Westminster S.W. 1
VINCENT DELPORT
European Editor

Editorial Correspondents

Birmingham.....R. W. KINCEY
Birmingham 3-1121
Buffalo.....L. G. FELDMANN
Cleveland 5353
St. Louis.....MAC L. HUTCHENS
Republic 7752
Youngstown.....GEORGE R. REISS
7-1471
Los Angeles.....NORMAN LYNN
Hudson 2-4376
San Francisco.....EDWIN HAVERTY
Yukon 6-5151
Seattle.....R. C. HILL
Melrose 1895
Dallas.....C. K. CATES
Riverside 4355
Toronto.....F. S. TOBIN
Empire 4-9655
Birmingham, Eng.....J. A. HORTON
Paris, France.....LEON JAUDOUIN-PRO
Liege, Belgium.....M. JACQUES FOULON
Dusseldorf, Germany.....DR. HERBERT GROS

BUSINESS STAFF

Business Manager, J. W. ZUBER

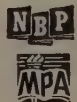
Advertising Manager.....C. H. BAILEY
Production Manager.....A. V. ANDERSON
Promotion-Research Mgr.....S. F. MARINO
Classified Advertising Mgr.....DORIS ROBBINS
Circulation Manager.....G. R. EBERSOL
Market Statistics.....G. J. AUNE
Mail & List Service.....BETTY HINTON
Reprints.....C. B. NIEL

Advertising Representatives

New York 17.....60 East 42nd St.
E. W. KREUTZBERG, K. A. ZOLLNER
Murray Hill 2-2581
Farmington, Conn.....12 Farmstead Lane
CALVIN FISHER, JR.
Farmington 7-1756
Pittsburgh 19.....2837 Koppers Bldg.
S. H. JASPER, J. C. SULLIVAN
Atlantic 1-3211
Cleveland 13.....Penton Building
D. C. KIEFFER, H. G. ROWLAND
Main 1-8260
Cincinnati 30.....5563 Beechmont Ave.
E. L. FRANKE—Parkway 5640
Detroit 27.....14583 Longac
C. A. TALLINGER JR.—Vermont 8-7207
Chicago 11.....520 North Michigan Ave.
L. C. PELOTT, W. L. POLAND
JOHN W. VAUGHAN
Whitehall 4-1234
Los Angeles 48.....6262 Commodore Sloat D.
F. J. FULLER—Webster 1-6865
Griffin, Georgia.....331 South 12th St.
FRED J. ALLEN—Griffin 7854

Circulation Representatives

H. R. DUNNE, C. A. PRICE



Published Every Monday by

THE PENTON PUBLISHING CO., Penton Bldg., Cleveland 13, Ohio

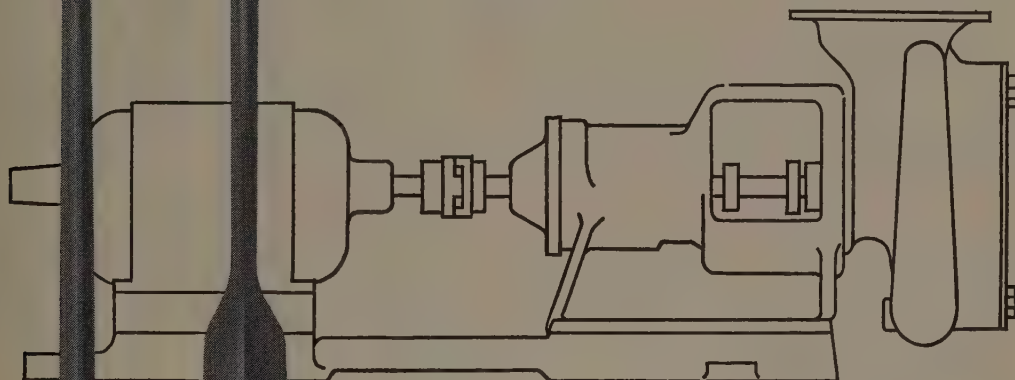
President and Treasurer.....G. O. HAYS
Chairman.....E. L. SHANER
Vice Pres., Director of Advertising.....R. C. JAENKE
Vice Pres. and Secretary.....F. G. STEINERACH
Asst. Secy. and Asst. Treas.....J. P. LIPKA

Also Publisher of FOUNDRY, MACHINE DESIGN, NEW EQUIPMENT DIGEST
Member of Controlled Circulation Audit, Inc., Magazine Publishers
Association Inc., Society of Business Magazine Editors, and National
Business Publications, Inc.

partners

in pumping corrosive liquids

Ever since the first stainless steel pump was made, COOPER ALLOY has been casting impellers, casings, covers, glands and miscellaneous pump parts to meet the most exacting of specifications. As the world's foremost producer of corrosion resistant cast shapes, we have long worked in partnership with designers and producers of stainless steel pumps . . . building a know-how and experience that



can only be bought with time, patience and the strong desire to serve. If cast stainless steel fits into your design or manufacturing picture, why not fill out the coupon below for a free copy of "Thirty Years of Progress." It will help you to know us better, and may point the way to a partnership in which we can both take pride.



THE
COOPER ALLOY
FOUNDRY CO. • HILLSIDE, NEW JERSEY

- ☐ Please send your new booklet "Thirty Years of Progress"
☐ Please have your representative call.

Name: Title:

Company:

Address

City: Zone: State:

NICKELOID

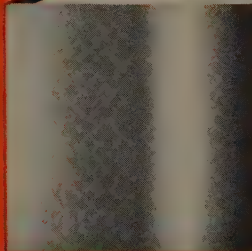
PRE-PLATED METAL



Mirror Back — ¼" stripe Chrome Steel is used. Decorative and durable.



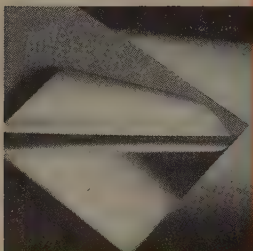
This is diamond stripe pattern, available in any desired base metal.



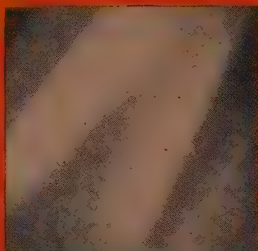
Chrome Steel, satin. Pre-plated. Chrome available in sheets, coils.



For broiling — a compact, beautiful infra-red combination Rotisserie and Uses Nickeloid pre-plated Chrome



This is Mar-Not, paper adhered, to ease fabrication and handling.



This is Copper plated steel. Lacquer coat recommended.



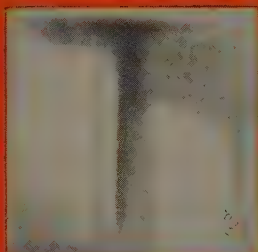
Steel base metals available in coils up to 34" wide.



For door chimes — ivory plastic covers, satin brass or chrome tubes of pre-plated



This is square crimp Chrome Zinc. Other crimps also offered.



Pre-plated metal, Chrome bright. May be plated one or two sides.



Horizontal stripe pattern, a striking, modern pre-plated design.

In the design and construction of your product, there are many practical possibilities for adaptation of Nickeloid pre-plated metals. The basic soundness of pre-plating (finishing before fabrication) was never more apparent than today. This 55-year-old process is being successfully proving thousands of applications, as seen on the counters and stills of the American marketplace.

BUILD **QUALITY** INTO YOUR PRODUCT

Kitchen canister set. A popular housewares item, made of Chrome Steel, bright finish.

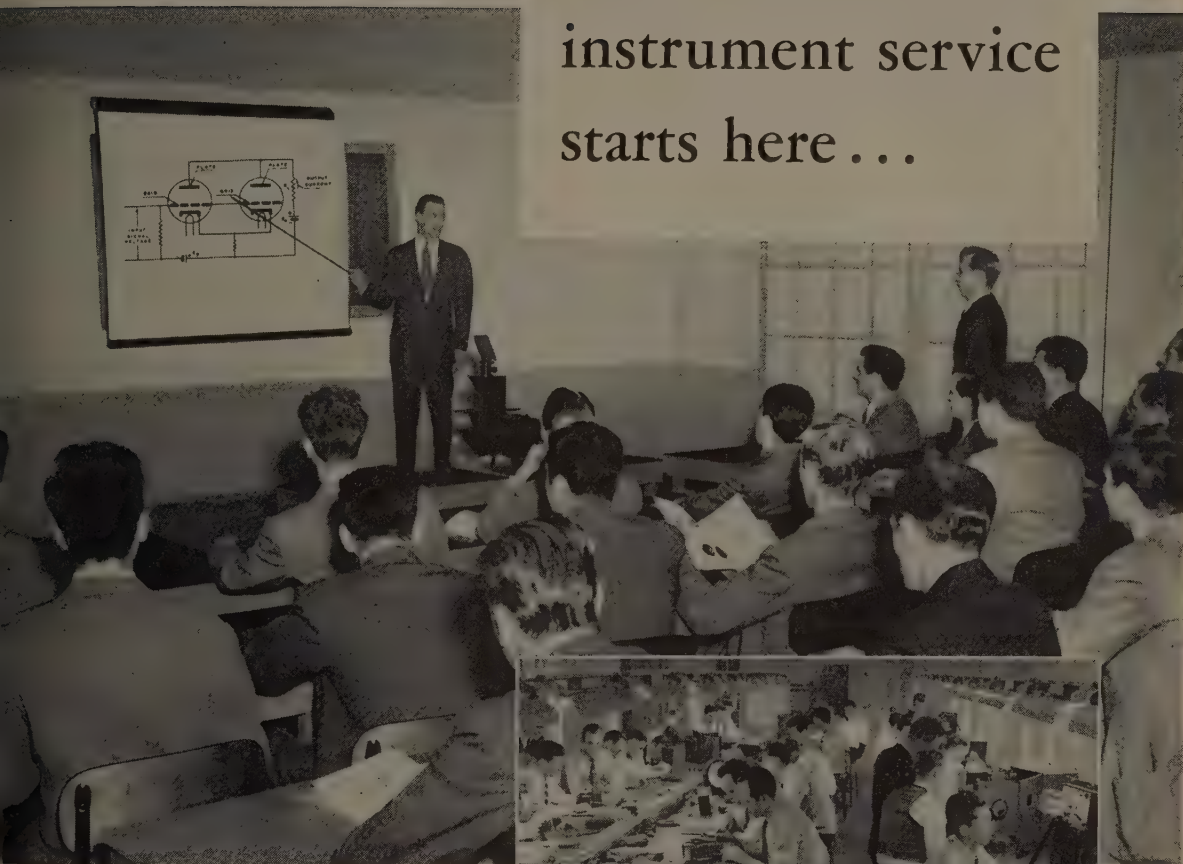
AMERICAN NICKELOID COMPANY

Established 1898

PERU 1, ILLINOIS



Your Honeywell instrument service starts here...



THOROUGH TRAINING is the foundation of Honeywell instrument service. In classrooms and in Honeywell factories, hand-picked men first are schooled in the theory and practical art of repairing good instruments in the best condition.

Then they serve an apprenticeship in field work... learning still more through first-hand experience. The Honeywell service man who comes to your plant is a full-fledged specialist, well equipped to render

the service you need... and that your Honeywell instruments deserve.

These men are part of the world's largest instrument service organization. They're at your call in more than 110 Honeywell offices, located near every major production center from coast to coast.

When trouble occurs, just pick up your phone and one of them will get to your plant promptly... within a few hours. But to prevent troubles before they start, investi-

gate Periodic Instrument Service... an economical plan that assures your instruments of regular check-ups by a capable service man.

Honeywell's service school training is also available, at no charge, to employees of customers.

Your nearest Honeywell office will gladly give you full details about Honeywell instruments, controls... and service.

MINNEAPOLIS-HONEYWELL REGULATOR Co., Industrial Division, 4462 Wayne Ave., Philadelphia 44, Pa.



MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS

First in Controls

only at **DRAVO** can you get . . .

a **COMPLETE LINE** of

CRANE CAB COOLERS AND CONDITIONERS

No matter what radical temperature variations or atmospheric conditions occur in your industry, there's a Dravo Crane Cab Cooler or Conditioner available to protect your crane cab operator, safeguard his health, increase his efficiency and alertness and improve safety and production records in your operations.

Dravo Crane Cab Coolers and Conditioners provide complete air conditioning, filter the air, remove dusts, dirt and fumes; heat the cab in winter, cool it in summer and provide constant ventilation the year around.

One Source of Supply— Easy Installation

Dravo is your *one source of supply* for all crane cab coolers and conditioners. Units are quickly and easily installed with a minimum of downtime required. Parts are interchangeable on all units.

Available for Immediate Delivery

No delays in getting the units you want. For more information write for a complete catalog—or phone your nearest Dravo sales office and have our representative call on you.

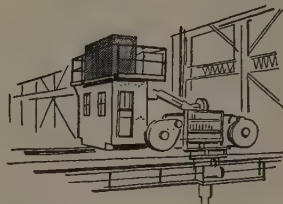


DRAVO

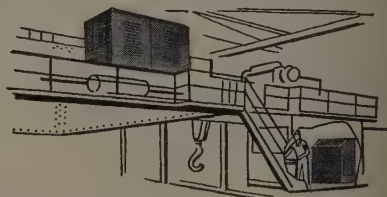
C O R P O R A T I O N

606 Dravo Building, Fifth and Liberty Avenues, Pittsburgh 22, Pa.

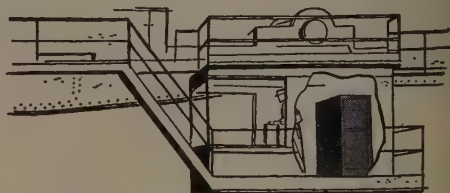
ATLANTA • BOSTON • CHICAGO • CLEVELAND • DETROIT • NEW YORK • PHILADELPHIA • PITTSBURGH




SELF-CONTAINED COOLERS—mounted alongside the cab or on the cab roof. Only electrical leads and connections required. Thermostat control—fully automatic—maintains 85° F. temperature with ambient temperatures up to 175° F. Ideal for “hot spots” in steel and other metal-working industries.



SPLIT-TYPE COOLERS—installed on the crane in two sections—the heavy condenser unit *on the crane* wherever you want it—the light cooling section *in the cab* with the operator. Two sections joined only with refrigerant pipe and electrical connections.



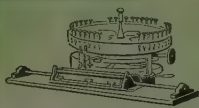
SMALL HEATERS AND VENTILATORS—especially designed to filter dusts and dirt, remove fumes, provide constant ventilation, supply heat in winter. Ideal for cranes in quarrying, slag, cement and similar industries.



*The operator
controls the motions
of all units from this
pendant on a Lucas
Horizontal Boring
Machine.*



*Template
or prototype and
all controls are at the
operator's finger tips, on
a New Britain +GF+
Copying Lathe.*



Machines for Making Progress

THE price of a thousand things like typewriters, refrigerators, and hardware **must** be kept within people's reach. Otherwise progress stops short and business hits the skids.

The improved metalworking efficiency of machines like New Britains and Lucases have kept manufacturers' costs from sailing out of sight as a result of high material costs, wage hikes and soaring taxes.

Have you made full use of really modern machines in your own business since World War II? Or will high manufacturing costs threaten your ability to compete successfully when the going gets tough?

New Britain four, six and eight spindle Automatic Chucking Machines set the standard for industry because

AUTOMATIC BAR AND CHUCKING MACHINES
LUCAS HORIZONTAL BORING, DRILLING
NEW BRITAIN +GF+ COPY



98

AUTOMATIC
CHUCKING
MACHINE

NEW
BRITAIN

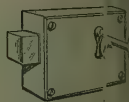
+GF+
COPYING
LATHE



they are designed from the ground up for their specific job. Open end construction provides maximum accessibility to all tools plus convenient chip removal. Built with the rigidity for the heaviest cuts and fastest speeds. Many exclusive features assure permanent accuracy.

The New Britain +GF+ Copying Lathe is built on a new principle, with copying saddle mounted below the spindle and no conventional bed to accumulate chips which fall free and accumulate through the back of the machine. Every control is at the operator's finger tips and the template or prototype is also on the operator's side of the machine. Powerful drive and a wide range of speed and feed ranges make the New Britain +GF+ a profitable producer on short or long runs.

A Lucas Precision Horizontal Boring, Drilling and Milling Machine combines the accuracy required in jig and fixture work with the power and rigidity for heavy milling operations. Pieces ranging from small dies to very large pieces weighing up to 50 tons may be handled on a Lucas. Automatic Power Positioning makes it a time and money saver for long run repeat operations as well as fast single setups.



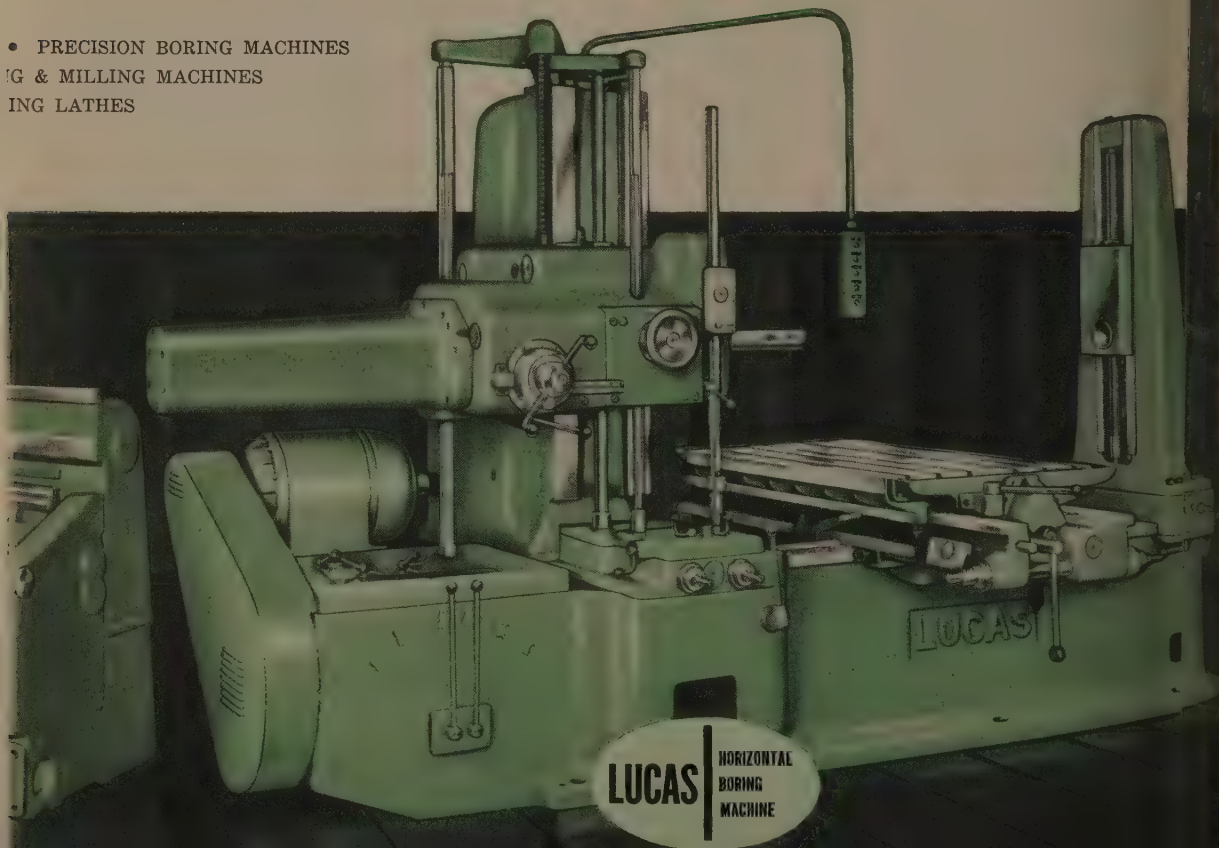
THE NEW BRITAIN MACHINE COMPANY

New Britain-Gridley Machine Division
New Britain, Connecticut

Lucas Machine Division
Cleveland 8, Ohio



- PRECISION BORING MACHINES
- DRILLING & MILLING MACHINES
- COPYING LATHES

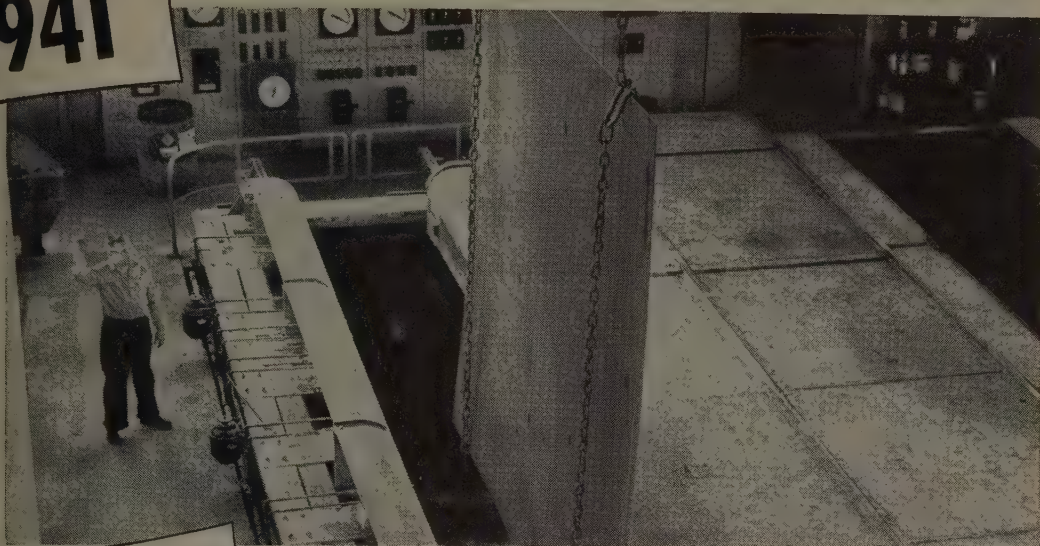


LUCAS

HORIZONTAL
BORING
MACHINE

1941

—Du Pont introduces Sodium Hydride Descaling



TODAY

—Over $\frac{1}{2}$ of the
Major Stainless Steel Producers
Use This Economical Process

Nearly one-third of the total U. S. prime production of stainless steel is cleaned in the hydride descaling process operated by today's major producers of the metal. This modern, economical method of removing scale is used also by many fabricators to descale stock in process, finished stampings, machined parts and a wide variety of large and small forms. Just a few minutes in the hydride bath—is all it takes to get a thorough cleaning, without pitting or loss in base metal.

Manufacturers using Du Pont's Sodium Hydride descaling process find that it eliminates the need for pickling or softening or breaking operations, which were frequently used to condition metal for other cleaning methods.

The process is simple, easily installed, maintained, and operated. Capital investment is low. A large volume

and variety of work can be handled in a small space and in a short time. Equipment can be manual, conveyorized, or continuous, designed to meet your requirements.

Let us tell you how this process can fit into your production program. We will be glad to study your requirements, give you specific recommendations about design and selection of equipment. And we will give you technical assistance in starting up—help you train operating men.

DISTRICT AND SALES OFFICES: Baltimore • Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit • Kansas City* • Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco.

*Barado & Page, Inc.

More detailed information about the process—how it works, what it can do for you—can be found in our new book. Call our nearest office or use the coupon below for your copy.

DU PONT

**sodium hydride process
for positive descaling**



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department
Wilmington 98, Delaware

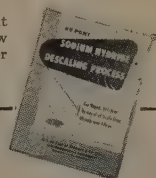
Please send me more information on the Du Pont Hydride Descaling Process: advantages, applications, equipment used. I am interested in cleaning _____ products.

Name _____ Position _____

Firm _____

Street and No. _____

City _____ State _____

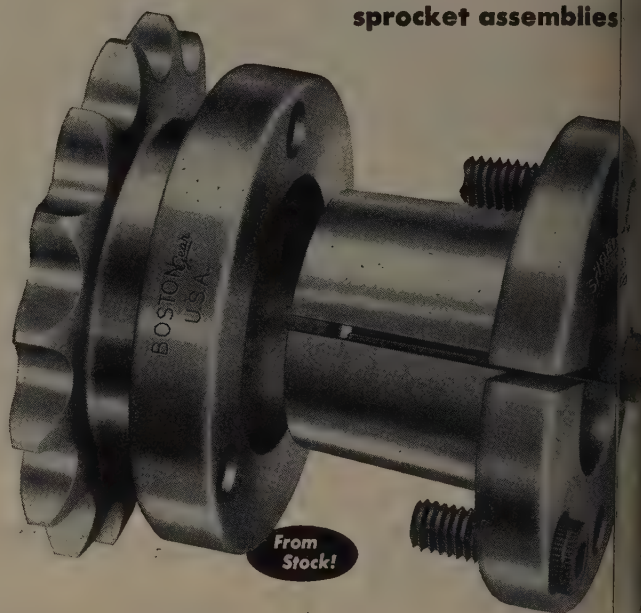
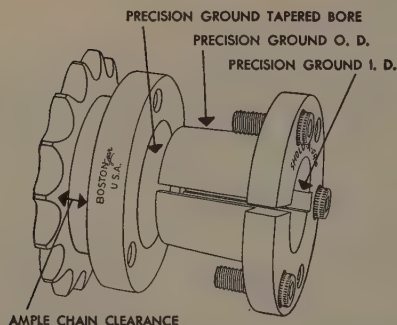
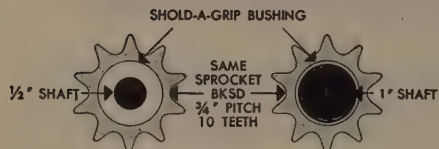


Here's what you've wanted . . .

in interchangeable
sprocket assemblies



The New SHOLD-A-GRIP® INTERCHANGEABLE TAPERED BUSHINGS



Accommodates MORE Sprocket Sizes

In the SHOLD-A-GRIP Sprocket, holes for fastening set screws are in the shoulder. Thus, no metal is cut from the sprocket itself. This assures maximum strength, and permits cutting a minimum number of teeth with a maximum size bore. SHOLD-A-GRIP Sprocket Pinions can be fitted to a wider range of shaft sizes — from $\frac{1}{2}$ " to $2\frac{1}{2}$ " — easily and quickly with SHOLD-A-GRIP Bushings.

Permits Use of SMALLER Sprocket Pinions

The unique shoulder construction brings smaller sprockets into the interchangeable class. For example, Sprocket BKSD $\frac{3}{4}$ " Pitch with 11 teeth can be used on any size shaft from $\frac{1}{2}$ " to 1" by inserting the correct size SHOLD-A-GRIP Bushing.

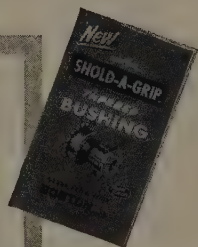
Gripping Power Exceeds Chain Strength

PRECISION-GROUNDING of tapered bore of SHOLD-A-GRIP Sprocket, and of inside and outside diameters of SHOLD-A-GRIP Bushing assures:

1 Equalized gripping power the entire length of bushing (even if shaft is not to size).

2 Maximum gripping power. Tests show CHAIN WILL BREAK before SHOLD-A-GRIP will SLIP.

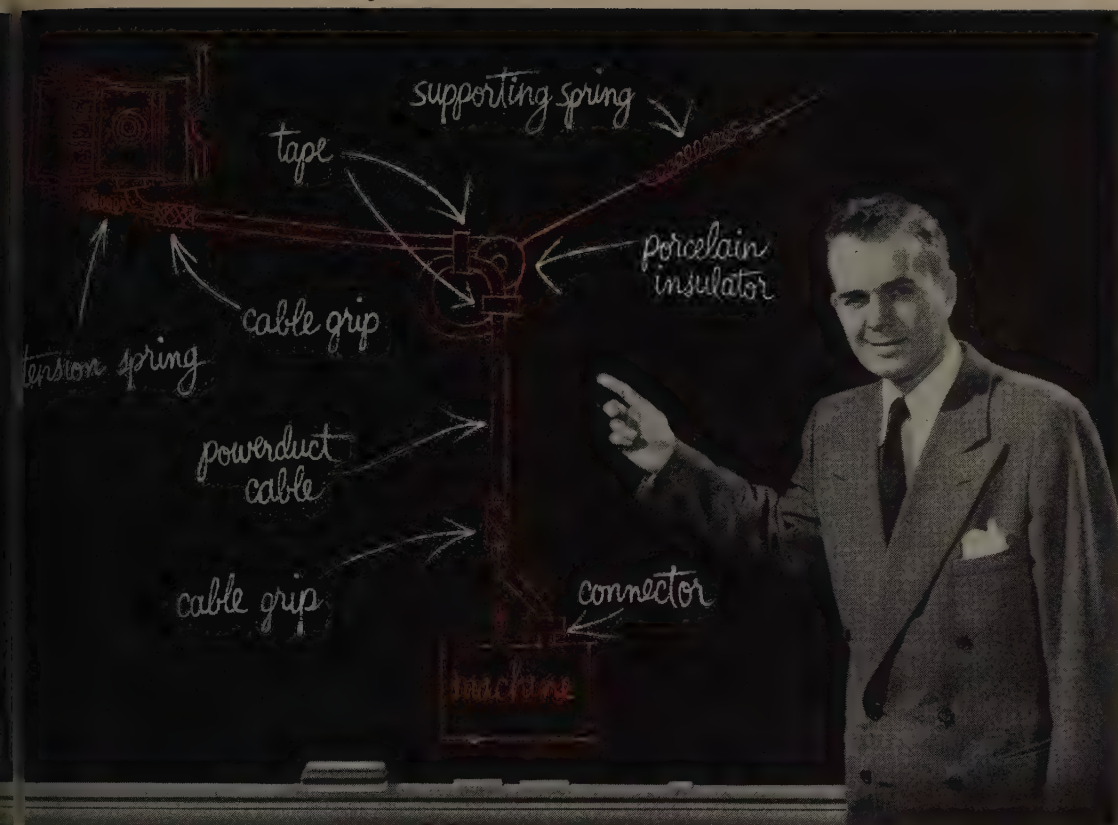
Look over the SHOLD-A-GRIP, and see why it is your best buy. Get complete details...ask your BOSTON Gear Distributor, or write for the new SHOLD-A-GRIP folder. Boston Gear Works, 73 Hayward St., Quincy 71, Mass.



OFF-THE-SHELF DELIVERY FROM STOCK
AT YOUR NEARBY
BOSTON GEAR DISTRIBUTOR

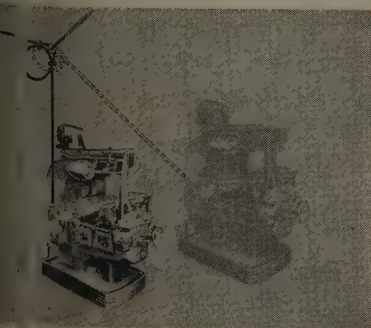
BOSTON Gear

POWER TRANSMISSION PRODUCTS
OVER 5000 STOCK ITEMS



... easily flexible Powerduct Cable plugs in. Spring keeps cable taut. For simplicity of installation and relocation, compare this cable with conduit.

No busduct system is truly flexible without this **New Powerduct Cable**



... of machinery is increased. Powerduct Cable
... to usefulness of many types of equipment.

the right cable for the job
ANACONDA[®]
wire and cable

It's the only nonmetallic-armored busdrop cable UL approved for this hard use; cuts cost of relocating machines

Your plant may well suffer from hardening of the power arteries. Here's why. Even if you have a modern busduct system, it may be flexible *only so far as it goes*. You may still have to rip out permanent or semi-permanent wiring every time you rearrange important machines. That's costly.

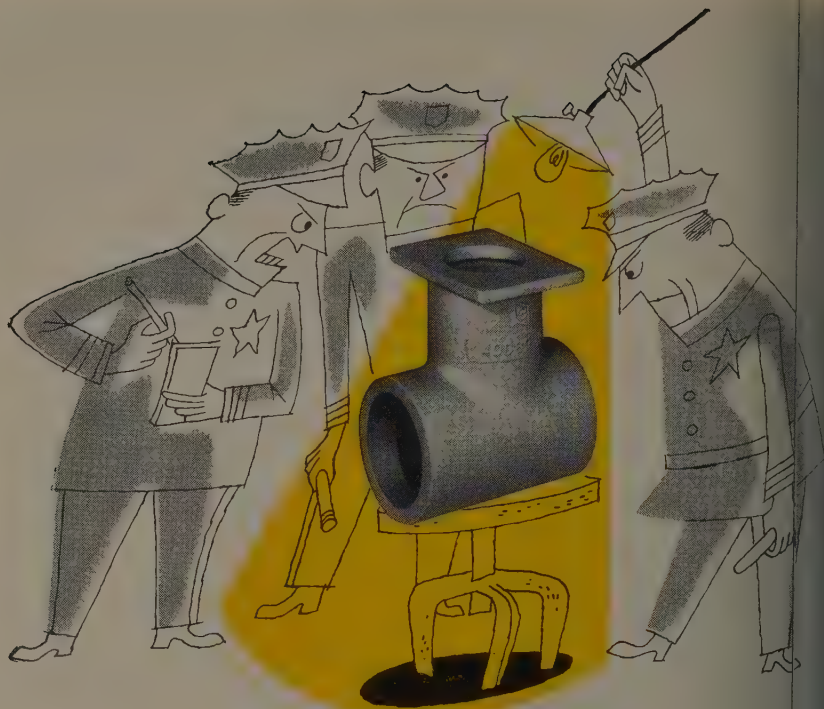
Here's how to remedy this situation. Match your present busduct system with money-saving ANACONDA Powerduct Cable. It's the only cable of its type approved by Underwriters' Laboratories, Inc. for busway branches under section 3646, 1951 National Electric Code.

You save many ways. Powerduct Cable is much cheaper to install than conduit. It handles easily. Grips prevent cable creep. No time is lost. You get circuit capacity at any point for any load at any time. It's a cinch to relocate. Coil (see illustration) makes local changes easy.


How tough is it? Its flame-retardant jacket, woven like a fire hose, takes heavy mechanical abuse, won't fray. Cold-flow is no problem. Cutting compounds, oil, acid, water, grease won't harm it.

Plan now to add flexible Powerduct Cable to your busduct system. See your regular supplier and insist on the ANACONDA Trademark—your positive proof of UL approval for this use. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.

82377




Booked on Suspicion

... and held for further questioning. Every Sivyier casting is considered guilty of flaws until proven innocent. That's why rigid inspection follows each casting through manufacture ... to insure compositional accuracy ... internal integrity ... narrow dimensional tolerances. Every casting carrying the Sivyier  has been through the third degree of painstaking inspection to assure a better casting value for you.



S

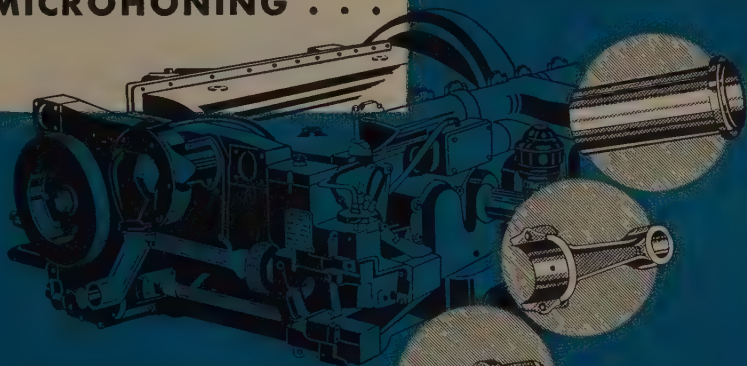
The sign of a casting with a "clean record." Get acquainted with the famous Sivyier  — the sign of better steel castings. Inquiries promptly handled.

SIVYER

SPECIALISTS IN HIGH ALLOY AND SPECIFICATION STEEL CASTINGS

SIVYER STEEL CASTING COMPANY • MILWAUKEE  CHICAGO  MAIN OFFICE: 1675 SO. 43rd ST. • MILWAUKEE, WIS.

INCREASED EFFICIENCY OF DIESEL ENGINES THROUGH MICROHONING . . .



CUMMINS AUTOMOTIVE MODEL NHHB-600 ENGINE

Diesel engines are chosen because of their dependable low cost power. The more precise the fit of parts, the more efficient the engine.

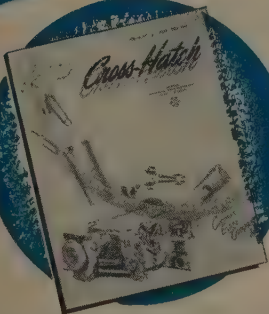
MICROHONING gives to functional surfaces of

- cylinder liners
- connecting rods
- valve guides
- injector barrels
- pump discs . . .

accurate size, true geometry, and the characterized finish—all at production rates.

Information
on DIESEL
MICROHONING of
ENGINE PARTS

Write for
Cross Hatch



MICROHONING—STOCK REMOVAL + GEOMETRY + SIZE CONTROL + SURFACE FINISH

MICROMATIC HONE CORPORATION • 8100 Schoolcraft, Detroit 4, Michigan

MICROMATIC HONE CORP.
MICRO-MOLD MFG. DIV.
Post Road
East Greenwich, Connecticut

MICROMATIC HONE CORP.
614 Empire Building
26 So. Main Street
Rockford, Illinois

MICROMATIC HONE CORP.
1539 Grande Vista Avenue
Los Angeles 23, California

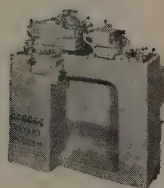
MICROMATIC HONE LTD.
55 George Street
Brantford, Ontario, Canada

MICROMATIC HONE CORP.
MICRO-MOLD MFG. DIV.
231 So. Pendleton Avenue
Pendleton, Indiana

REPRESENTATIVES: Overgard Machine Tool Company, 234 Commonwealth Bldg., Denver 2, Colorado
Hallidie Machinery Co., 2726 First Ave., South, Seattle, Wash. • REPRESENTATIVES IN ALL PRINCIPAL COUNTRIES

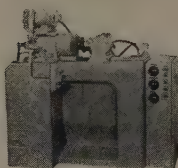
bryant

internal grinding



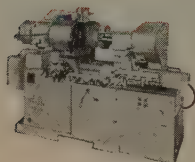
no. 1309-W

Finishes 2 bores and a taper straight and concentric. 2 wheelheads are used on this semi-automatic. Max. traverse stroke, 6". Max. grinding length, 3½".



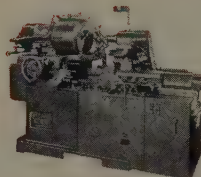
no. 1109

For high production of small bores where accuracy of size and finish is required. Max. traverse stroke, 6". Max. grinding length, 3½".



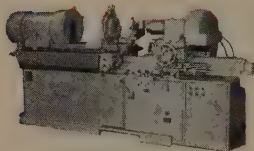
no. 1316

Two wheelheads for high production of jobs requiring face and bore, or face and O.D. grinding. Max. traverse stroke, 20". Max. grinding length, 8".



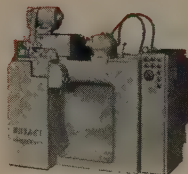
no. 1116

A general purpose high production grinder for tool room, small shop, or general production. Maximum traverse stroke, 20". Maximum grinding length, 8".



no. 1416

Specially designed for grinding bores in long work, such as machine tool spindles. Maximum traverse stroke, 20". Maximum grinding length, 8".



no. 1209

A fully automatic, high production machine for small and medium bore grinding. Max. traverse stroke, 6". Max. grinding length, 3".



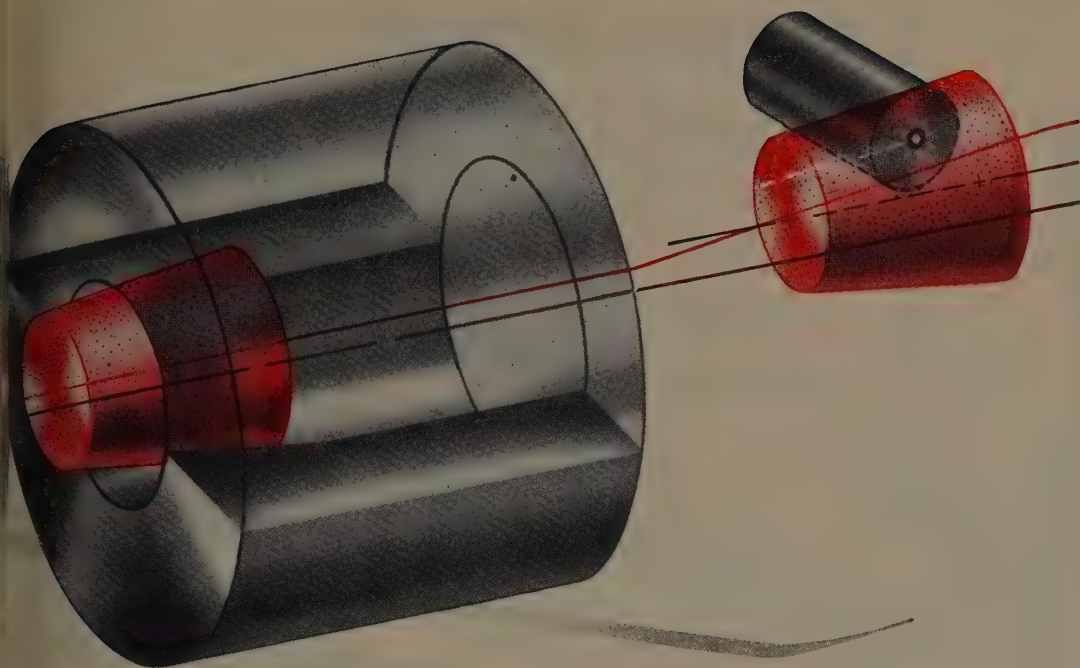
no. 1460

For production or single piece hole grinding on parts up to 60" diameter. Max. traverse stroke, 21". Max. grinding length, 16".



no. 2209

For precision and high production grinding of ball bearing races, gears, rollers, bushings, etc. Max. traverse stroke, 6". Max. grinding length, ¾".



IT is common assumption in internal grinding that once the grinding wheel passes the diamond, all errors will be eliminated and the wheel will be a perfect cylinder. It is also assumed that this grinding wheel can produce a straight hole. These two assumptions are true if the wheel path is a straight line parallel with the axis of the wheel as it passes the diamond and traverses the work.

In the illustration, the wheel slides are badly worn and the wheel path is not a straight line. The distortion in the ways causes the wheel to move gradually away from the diamond and the wheel is dressed to a taper as it passes the diamond. Then, as the tapered wheel traverses the work, it will grind only on its large diameter. At the point of reversal the tapered form will be transferred to the work. If the traverse stroke is lengthened, the tapered section will be moved to the new point of reversal. In addition, wheel wear will be excessive, finish will be poor, feed lines may be visible.

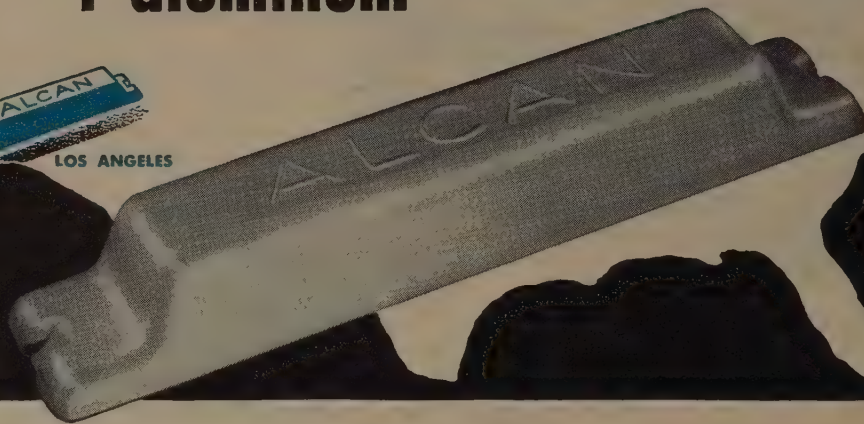
Available information advises simply turning the workhead or changing the length of traverse to correct taper. In the case illustrated, neither turning the workhead nor changing the length of traverse will produce a straight hole. The only possible remedy is to straighten the wheel slide ways which will, in turn, straighten the wheel path. The wheel will then contact the work properly, producing correct geometry of the hole, longer wheel life and better finish.

Bryant Chucking Grinder Company
Springfield, Vermont, U. S. A.

Internal grinders • Internal & External thread gages

3 MORE OFFICES

*are serving
U.S. founders
and fabricators
of **Alcan**
aluminum*



You know what's happening to the demand for aluminum. Up and up it's gone, yet this is still only the beginning. For aluminum—light-weight, nonrusting, strong, easy to fabricate—is proving its desirability in new uses every day.

To help meet your needs for this modern metal, our associate the Aluminum Company of Canada, Ltd., is constructing power and smelting facilities in Quebec for producing 130,000,000 more pounds . . . and facilities in British Columbia for producing 200,000,000 more pounds of aluminum per year.

For the convenience of our customers in important U.S. industrial areas, we have opened additional offices—in Cleveland, Chicago, and Los Angeles. Their addresses appear below.



ALUMINUM IMPORT CORPORATION

Distributing company of the **ALUMINIUM LIMITED** group, in the Western Hemisphere
Offices and agents in 40 cities
630 Fifth Avenue, New York 20 • 20 North Wacker Drive, Chicago 6 • 505 Terminal Tower, Cleveland 3
510 West Sixth St., Los Angeles 14 • Av. Ing. Luis A. Huergo 1279, Buenos Aires • Rua Da Quitanda 96, São Paulo

Ask yourself these speed reduction questions . . .

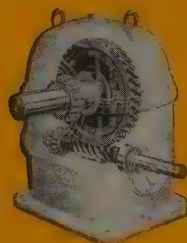
1 Do I want high-ratio reduction with right-angle takeoff?



Drawing shows motorized P.I.V. variable speed and worm gear drives direct-coupled.

Then your answer is a **LINK-BELT Worm Gear Drive**

Reduction ratios: 3.1:1 to 8000:1
Torque: 1,400 to 123,000 in. lbs.
Output shaft rpm: 0.22 to 564



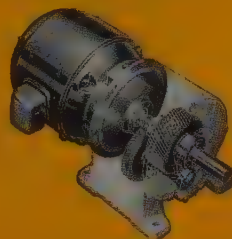
2 Is space at a premium?



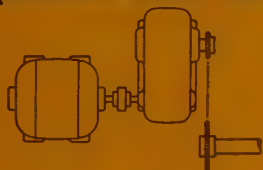
Drawing shows gearmotor with roller chain drive.

Then your answer is a **LINK-BELT Gearmotor**

Reduction ratios: 6.2:1 to 292:1
Hp range: 1 to 30
Output shaft rpm: 6 to 280



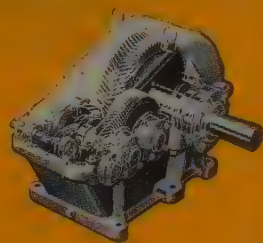
3 Will I need high hp capacity with parallel shaft takeoff?



Drawing shows motor with herringbone gear and roller chain drives

Then your answer is a **LINK-BELT Herringbone Gear Drive**

Reduction ratios: 2.84:1 to 318:1
Hp range: 1/2 to 1000
Output shaft rpm: 2 to 600



Yes, LINK-BELT builds all 3

WHATEVER factor governs your speed reducer selection—ratio, space, shaft position, shock loading—you can get the exact answer to your needs from Link-Belt's complete line of enclosed gear drives.

For Link-Belt builds a full range of sizes and ratios in all three types—Helical, Herringbone and Worm. When a Link-Belt power transmission engineer analyzes your conditions, he can recommend the spe-

cific drive to meet your specialized requirements.

For complete information, call the Link-Belt office near you.

LINK-BELT
ENCLOSED GEAR DRIVES

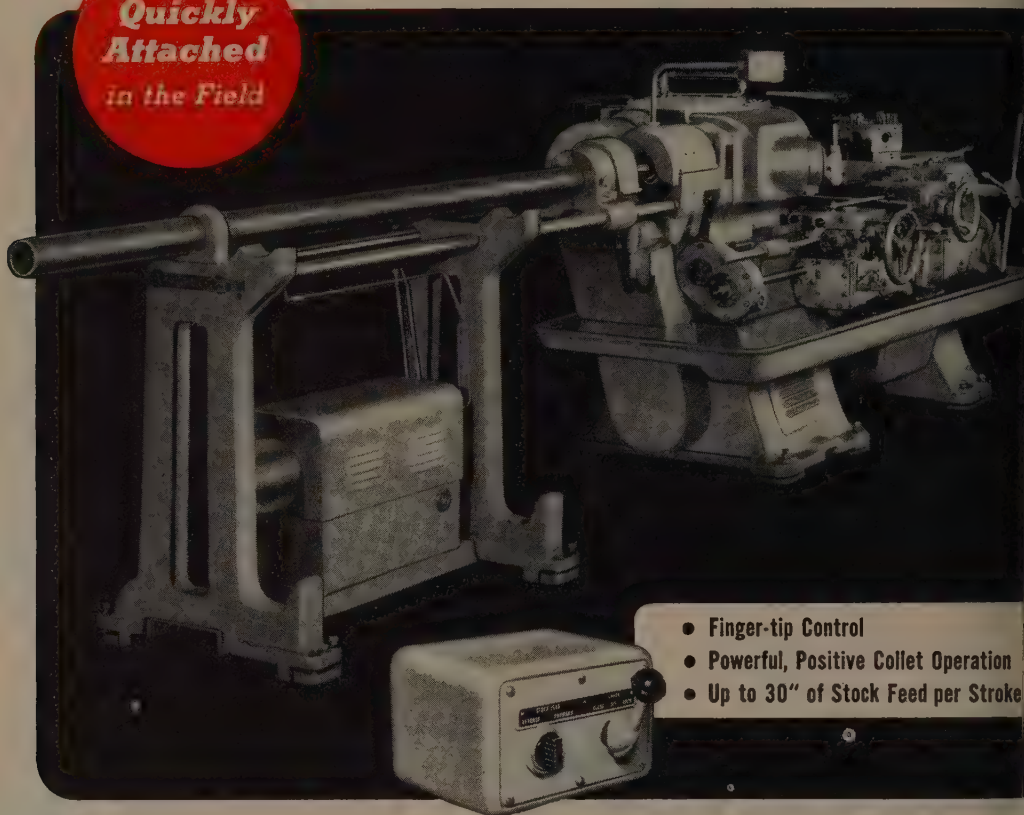
Power Operated

COLLET CHUCK AND BAR FEED

Increases production

. . . cuts turning costs

**Quickly
Attached
in the Field**



- Finger-tip Control
- Powerful, Positive Collet Operation
- Up to 30" of Stock Feed per Stroke

This new, work-saving development is a rigid, heavy-duty hydraulic unit built to handle full capacity bars at full capacity spindle speeds.

It provides effortless finger-tip control of bar feeding and chucking, enabling operators to *maintain a faster, steadier pace throughout the day.*

It can be attached quickly to ANY J & L No. 3, 4, 5, 7A and 8A Universal Turret Lathe in the field.

- ★ Handles ● or ● stock
- ★ Side-loading, silent safety tube
- ★ Heavy, wide support legs
- ★ Levelling and floor lagging screws
- ★ Wide-spaced steel guide bars
- ★ Feed chuck mounted on anti-friction bearing
- ★ Independent hydraulic unit
- ★ Automatic strip-back cycle
- ★ Auxiliary feed chuck available

JONES & LAMSON

JONES & LAMSON MACHINE CO., 517 Clinton St., Dept. 710, Springfield, Vt., U.S.A.



*Machine Tool Craftsmen
Since 1835*

TURRET LATHE DIV

STEEL



Chance Vought F7U Cutlass

Here's a simple equation:

NO HIGH ALLOY STEEL = NO PLANE

Without stainless steel, super-high-temperature steels and special electrical alloys, it just wouldn't be possible to build, power and control a plane in the over-600-miles-per-hour class. That is our job: to develop and produce such metals . . . and if you have any problems that involve resisting corrosion, heat, wear and great stress, or require special magnetic properties, we're the people to see. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

PIONEERING on the Horizons of Steel

Allegheny Ludlum



MORE BLAST FURNACES HAVE BEEN LINED WITH OLIVE HILL BRICK than with any other brand!

Yes, OLIVE HILL blast furnace brick have lined more blast furnaces than any other brand! OLIVE HILL holds the most records for daily, weekly, monthly and yearly output and for greatest tonnage and length of service.

Reasons for Top Quality

The unrivalled, industry-wide record of OLIVE HILL is due to: *unique fireclay* and *superior processing*. Greco produces OLIVE HILL—from Kentucky fireclay, unmatched in suitability for blast furnace brick—using constant control of every step: scientific grain sizing, efficient methods of de-airing, special brick-sizing, and accurately controlled burning.

OLIVE HILL Regular and HI-FIRED

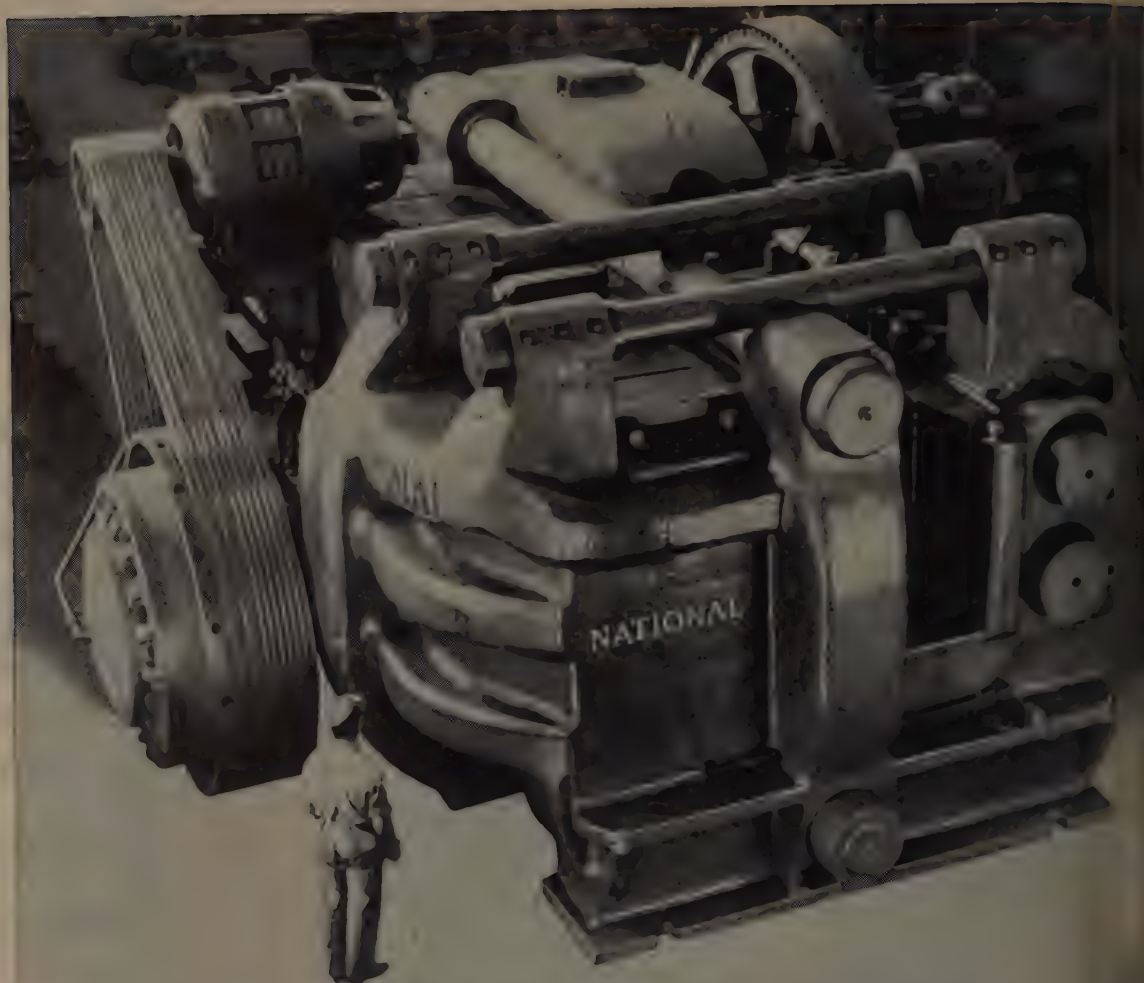
The temperature at which OLIVE HILL is burned gives brick of high refractoriness, high density, low porosity, good resistance to carbon disintegration, excellent resistance to abrasion, and high ability to carry load. OLIVE HILL HI-FIRED (Cone 18) brick are virtually immune to carbon disintegration, and have even greater density, lower porosity, and higher resistance to abrasion and deformation under load.

Whether you prefer OLIVE HILL or OLIVE HILL HI-FIRED, or a combination, you may be sure that OLIVE HILL will give you the *world's best value* in blast furnace brick.

GENERAL REFRACTORIES



**GENERAL
REFRACTORIES
COMPANY**
PHILADELPHIA



FOR DEEP-PIERCING AND UPSETTING!

Built into National Forging Machines is the ability to take in stride difficult deep-pierce and upset-forging jobs.

Rigid, long-running National upsetters,

coupled with National's long-established engineering experience, result in (1) A superior, more-accurate forging; and (2) Increased round-the-clock, lower-cost production.



THIS DOOR IS ALWAYS OPEN

Forgemen still choose National Forging Machines for their difficult work, and still come through our Open Door for assistance with their forging problems.

NATIONAL

MACHINERY COMPANY

Tiffin, Ohio — Since 1874

DESIGNERS AND BUILDERS OF MODERN FORGING MACHINES • MAXIPRESSES • REDUCEROLLS • COLD HEADERS • BOLTMAKERS • NUT FORMERS • TAPPERS • RAILROLLERS

Hartford

Detroit

Chicago

EXTRA CUT-ABILITY

... you can count on it in every

SIMONDS

"Red End"

Power Hack Saw Blade

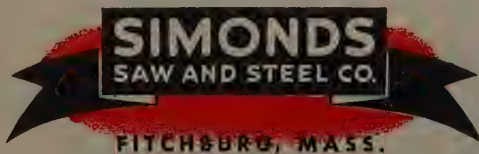
It's the *plus* you get in "Red End" Blades that makes the difference in overall performance, cutting life and dependability . . . a *plus* that starts with Simonds extra tough Hack Saw Steel, poured and rolled in Simonds own steel mill . . . followed by proven know-how in milling and setting the teeth and in heat-treating for uniform hardness and toughness of every blade. A choice of three types of job-designed blades in all standard sizes is another *plus* that pays off in extra cut-ability and lower hack saw costs for you. Get delivery from stock from your Industrial Supply Distributor.

HERE'S A RIGHT "RED END"
BLADE FOR EVERY JOB!

HIGH SPEED MOLYBDENUM
— the RED Blade for cutting
mild alloy steels and
general purpose use.

HIGH SPEED TUNGSTEN —
the GREY Blade for cutting
hard alloys and stain-
less steels.

HIGH SPEED WELD-EDGE —
the SHATTERPROOF Blade
for use where maxi-
mum safety is
required.



Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon. Canadian Factory in Montreal, Que.
Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Simonds Abrasive Co., Phila., Pa. and Arvida, Que., Canada

GRITCLOTH

TOMORROW'S SANDING FABRIC TODAY!

USE WET OR DRY

BAY STATE

NON-CLOGGING

PATENT APPLIED FOR

USE BOTH SIDES

No. 320 GRITCLOTH

By Machine or Hand

10 to
15 TIMES
LONGER
LIFE

5' FLAT OR FOLDED

ABRASIVE PRODUCTS
WESTBORO, MASS.

LONG LIFE

THOUSANDS OF SUPER-SHARP EDGES
THAT KEEP ON CUTTING

SEND FOR SAMPLE!

**BAY
STATE**

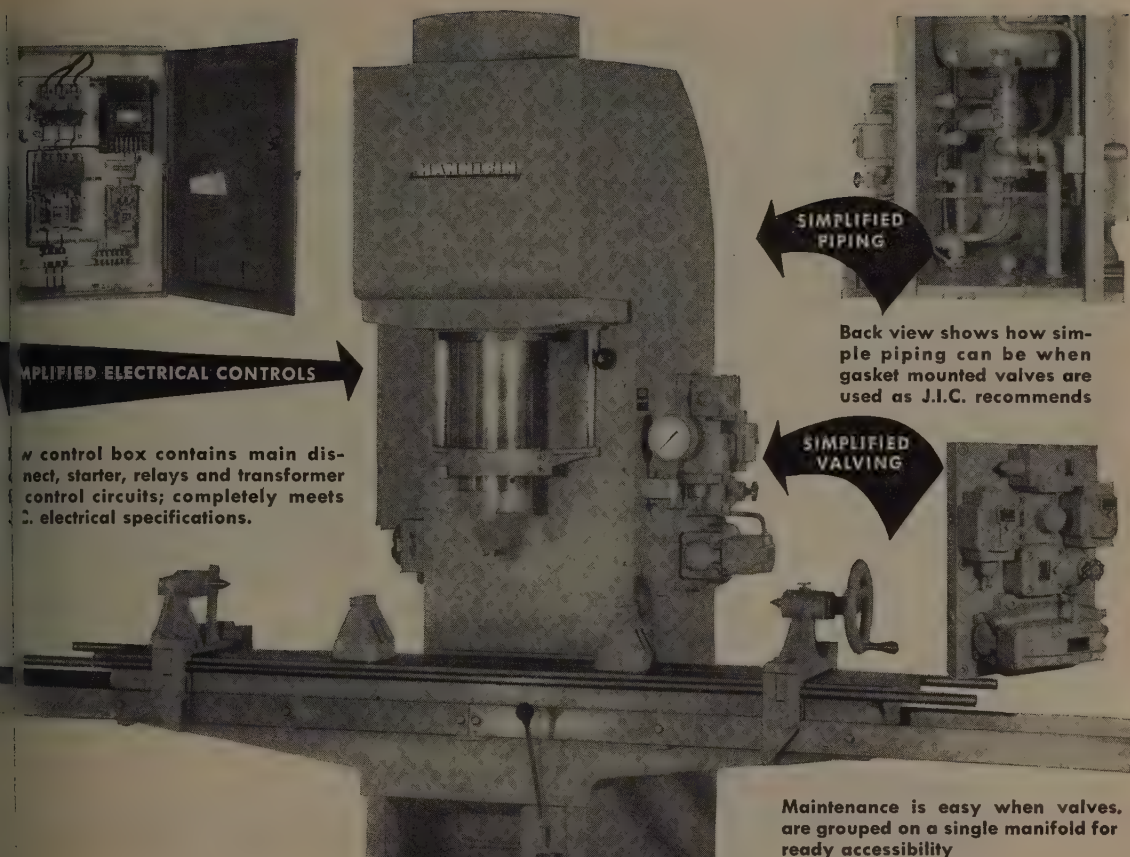
ANOTHER SPARKLING BAY STATE "FIRST"!

Once and for all, **GRITCLOTH** solves the age-old problem of clogging sandpaper and other types of coated papers. GRITCLOTH'S revolutionary open-mesh design lets the removed particles flow right through, and the sharp abrasive teeth keep right on cutting. Actual tests show 10 to 15 times the life of ordinary coated papers.

For all finishing jobs on either wood or metal, **IT'S GRITCLOTH TODAY.**

IT'S NEW IT'S BETTER IT'S BAY STATE

BAY STATE ABRASIVE PRODUCTS CO., WESTBORO, MASS., U. S. A.
Branch Offices and Warehouses — Chicago, Cleveland, Detroit, Pittsburgh
Distributors — All principal cities
In Canada: Bay State Abrasive Products Co. (Canada) Ltd., Brantford, Ont.



HERE'S A HANNIFIN HYDRAULIC PRESS

... built to J. I. C. Standards for
maximum performance, minimum maintenance

• You asked for this new straightening press. Hannifin designed and built it exactly to J.I.C. (Joint Industrial Conference) standards. Basically, this is Hannifin's standard 75-ton press with valving, piping and electrical controls positioned for maximum accessibility. This makes a safer, easier press to maintain.

Of course you can still select the press you need directly from the Hannifin catalog. However, if you want your press built to J.I.C. standards—or if your requirements are

otherwise special—a Hannifin Field Engineer can demonstrate how easily a standard model can be modified to exactly suit you.

The Hannifin line is really complete with hydraulic presses for straightening, press-fit assembly, forming, molding, riveting, clinching, punching, staking and marking. There are more than 75 standard models from which to choose—capacities to 150 tons. Hannifin Corporation, 1101 S. Kilbourn Ave., Chicago 24, Illinois.

Hannifin Representatives Are At Your Service
in These Leading Industrial Centers

Albany, Buffalo, Cincinnati, Cleveland, Dallas, Dayton, Denver, Detroit, Houston, Kansas City, Milwaukee, Minneapolis, Moline, New Orleans, New York, Philadelphia, St. Louis, Seattle, Richmond, Va.; Rochester, N. Y.; South Bend, Ind.; Washington, D. C.; Worcester, Mass. In Canada: TEM Sales Company, Toronto.

HANNIFIN

Hydraulic Presses • Pneumatic Presses • Hydraulic Riveters
Hydraulic Cylinders • Air Cylinders • Air Control Valves

WRITE FOR BULLETIN 130

HANNIFIN CORPORATION

1123 S. Kilbourn Ave., Chicago 24, Illinois

Please send me Bulletin 130 on Hannifin Hydraulic Presses.

Name.....

Position.....

Company.....

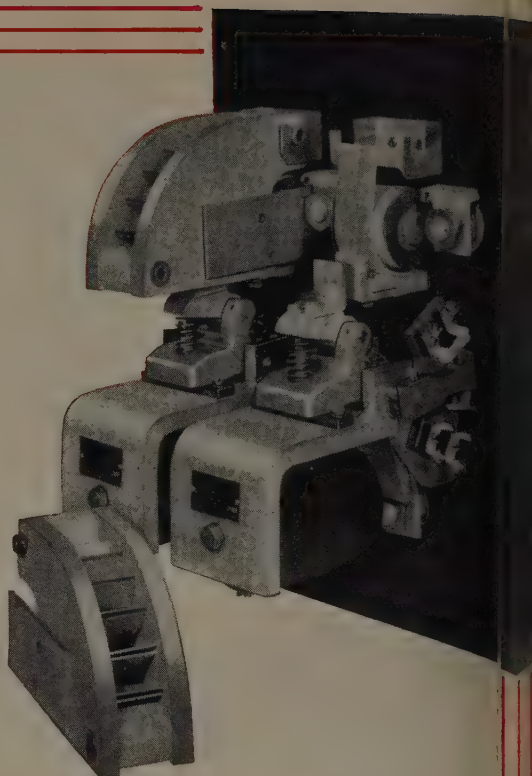
Address.....

City.....State.....



Developed ...with Steel Industry Cooperation

EXHAUSTIVE FIELD AND FACTORY TESTS have proved the remarkable durability of the new Type 260 DC Contactor. In the development of this heavy duty contactor, Allis-Chalmers engineers consulted and worked with steel mills . . . to meet their exacting requirements . . . to comply with their design preferences . . . to assure you efficient, reliable performance under the most severe operating conditions.



ALLIS-CHALMERS
Mill Type 260 DC
CONTACTOR

Check these Advantages:

INCREASED CONTACT AND CHUTE LIFE — Contact erosion and chute carbonization are reduced by an entirely new and exclusive principle of arc interruption. Pronounced rolling action of the heavy forged copper main contacts minimizes destructive scuffing and extends contact life.

QUICK, EASY INSPECTION — Contacts are exposed for inspection by merely lifting arc chute. Each contact is held by a single screw. Auxiliary contacts are mounted on contactor frame in full view. Operating coil is supported by one bolt.

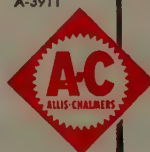
REDUCED MAINTENANCE — No field adjustments are necessary. Silver alloy auxiliary contacts need no dressing. Permanently lubricated *Oilite* bearings, running on stainless steel shaft, eliminate pivot oiling.

DESIGNED FOR EASY MOUNTING — As a replacement device, the Type 260 Contactor can be mounted on insulating panels from 1¼ to 1½ inches thick. No additional drilling is required for electrical interlocks, since they are mounted on the contactor frame.

Call your nearby A-C district office or write to Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 14B6505A.

A-3911

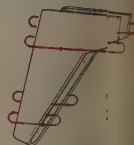
ALLIS-CHALMERS



NEW Fast Arc Centering Blowout

Arc Chute Assembly consists of tangular metal plates with U-shaped senents mounted alternately. Plates are inlaid from each other and are placed at right angles to circumference of contact travel.

Metallic segments act as individual blowout coils.



Arc is forced upward along arc runner by blowout coil and impinges on metal segment of arc chute.

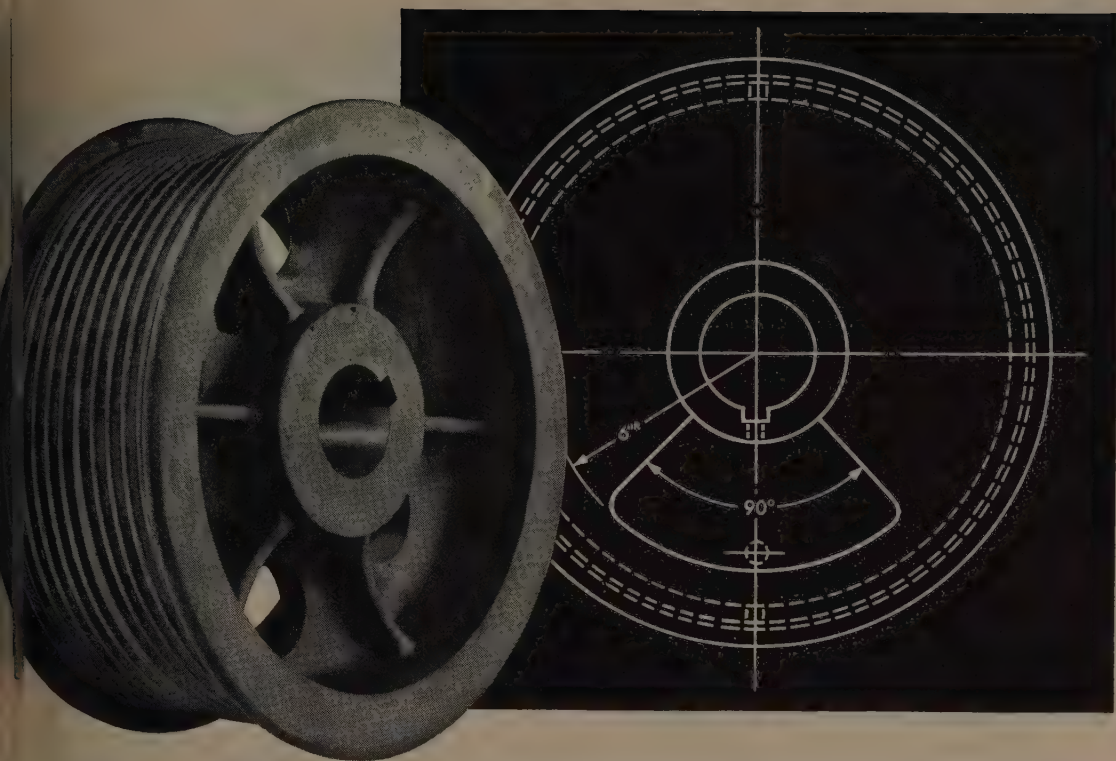


As contacts separate further, arc is stretched across an increased number of segments.



Arc rises quickly due to thermal and magnetic action of each individual metal segment.





Costly to fabricate ECONOMICAL TO CAST IN GRAY IRON!

GRAY IRON

Characteristics Include:

- Castability
- Rigidity
- Low Notch Sensitivity
- Wear Resistance
- Heat Resistance
- Corrosion Resistance
- Durability
- Vibration Absorption
- Machinability
- Wide Strength Range

The cable drum, shown above, was formerly produced by using plates of various thickness—cutting, assembling, welding and finally machining. Valuable and costly man-hours were expended in co-ordinating the efforts of the several mechanics involved in these operations. Thus, supervisory costs were added to high fabrication costs.

By redesigning the part as a Gray Iron casting, a cost saving of 41% per unit was effected. On a typical order involving 20 castings, the net saving to the customer was \$197, *after* initial pattern cost had been written off. Note that grooves are *cast in* instead of machined, effecting a substantial saving in machining time.

In addition to these savings, much longer operating life can be expected, because of Gray Iron's superior resistance to metal-to-metal wear and galling.

Don't miss opportunities like this to save man-hours, cut costs, and increase operating life by *redesigning in Gray Iron!* Write for technical information on advantages of the Gray Iron casting process.

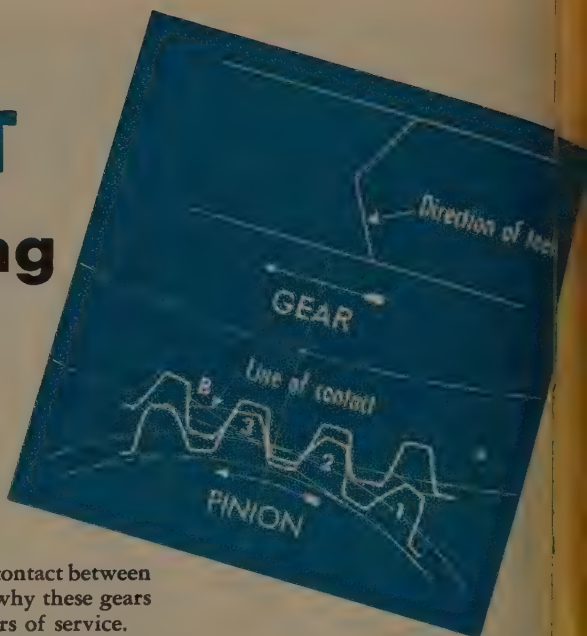


Make it Better with Gray Iron • Second largest industry in the Metal-working field

GRAY IRON FOUNDERS' SOCIETY, INC.

NATIONAL CITY-E. 5th BLDG. CLEVELAND 14 OHIO

BLUEPRINT for longer-lasting GEARS



This diagram, which illustrates the nature of the contact between a pair of Farrel-Sykes herringbone gears, shows why these gears continue to operate smoothly after so many years of service.

The lines of contact are oblique across the face of the teeth, and the pressure is evenly distributed over each tooth, from tip to working depth line. This means that there is no tendency for the contour of the teeth to wear unevenly.

The quiet, vibration-free performance of these gears results from extreme accuracy of tooth spacing, contour and helix angle, and other qualities inherent in the Farrel-Sykes method of gear generation. Precision manufacture and the use of highest grade materials also contribute to long gear life.

Farrel engineers are available to assist in working out unusual problems involving gears or speed reducers. Write for further information.

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONNECTICUT

Plants: Ansonia and Derby, Conn., Buffalo, N. Y.

Sales Offices: Ansonia, Buffalo, New York, Boston, Pittsburgh, Akron, Detroit, Chicago, Memphis, Minneapolis, Portland (Oregon), Los Angeles, Salt Lake City, Tulsa, Houston, New Orleans

HERRINGBONE GEARS

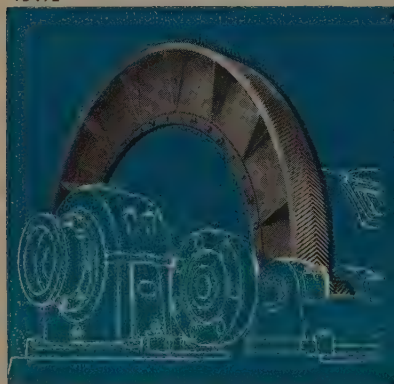
Farrel-Sykes herringbone gears are made in any size from $\frac{1}{4}$ " to 20' diameter, for any power capacity and speed.

SPEED REDUCERS

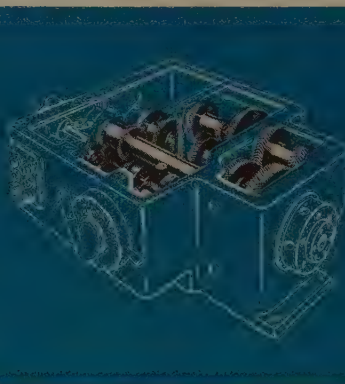
Farrel speed reducing units are available in a wide range of ratios and capacities. Designs include single, double and multiple reduction units, right angle drives and drives to meet special requirements.

Farrel-Birmingham®

FB-772



Ball mill equipped with Farrel-Sykes gears. The drive gear is 140" diameter, 18" face.



Farrel-Sykes herringbone gears used in the headstock of a lathe.



Skip hoist driven by two motors (each with Farrel speed reducers).

New

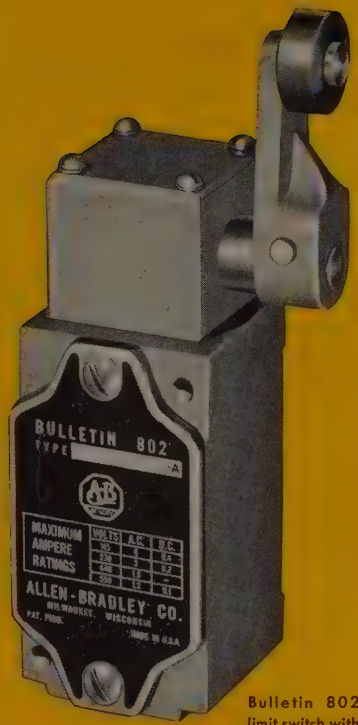
OILTIGHT LIMIT SWITCHES

Here is a new line of remarkably compact Allen-Bradley limit switches...streamlined for fine appearance and built for millions of failure-free operations.

The operating heads of these limit switches may be attached to the switch body in four definite locations, each 90 degrees apart. A large selection of pushrods, lever arms, and other actuating mechanisms is available.

The name plate cover has a synthetic rubber gasket to exclude oil. Terminals are easily accessible by removing the cover plate. The body is threaded for 1/2" conduit. The switch mechanism is snap-acting, with one single pole normally open and one single pole normally closed contact, electrically separated.

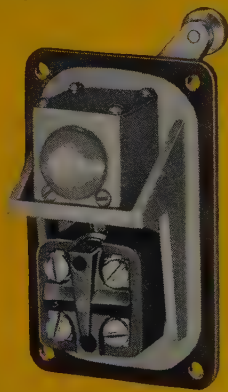
The new Bulletin 802 limit switches are designed for machine tool applications. For further information send for a copy of Allen-Bradley Bulletin 802.



Bulletin 802
limit switch with
roller lever



Roller lever type (Front View)
for cavity mounting in machine frames



Roller lever type (Rear View) showing terminals for n.o. & n.c. contacts

ALLEN-BRADLEY

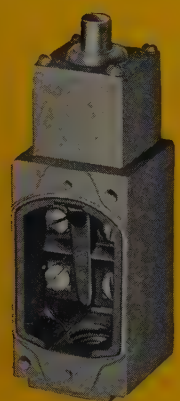
LIMIT SWITCHES



Allen-Bradley Co.
1316 S. Second St., Milwaukee 4, Wisconsin



Pushrod limit switch with roller for vertical motion of the pushrod



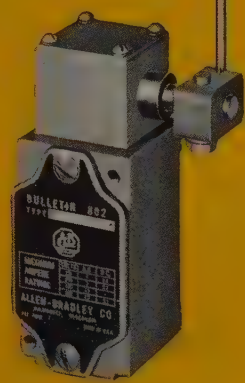
Pushrod limit switch without roller—cover off to show terminals



Pushrod limit switch designed for horizontal motion of the pushrod



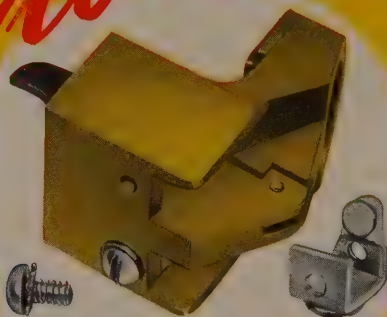
Pushrod limit switch with side pushrod and maintained contacts



Lever operated limit switch with a long and flexible operating rod

Extra! Handy Auxiliary Contact

for all Allen-Bradley Sizes 0 and 1 Solenoid Controls



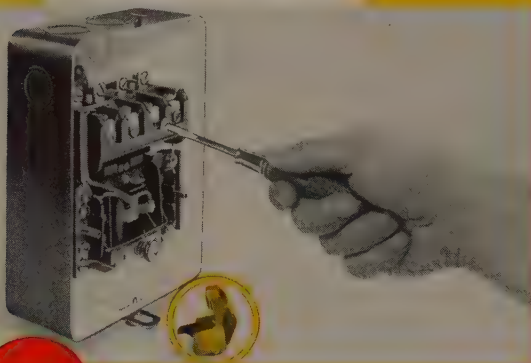
Contact may be reversed
by removing one screw

Do you want to add one or more extra pilot contacts to some of your Allen-Bradley solenoid switches . . . to operate indicator lights, relays, or other starters?

These new, compact auxiliary contacts can now be added to the arc hood of any and all standard sizes 0 and 1 solenoid switches. The operating arm of the auxiliary contact is actuated by the up and down motion of the solenoid plunger of the switch to which it is attached.

Write for descriptive literature.

SO SIMPLY APPLIED



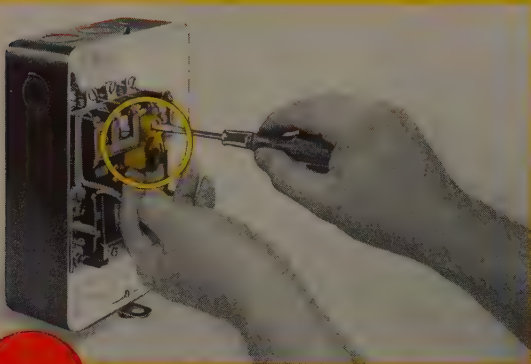
First

Remove the terminal screw from the stationary contact block of the Allen-Bradley starter.



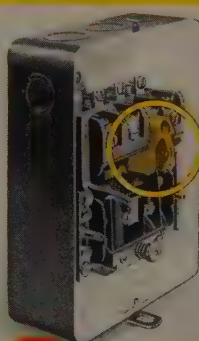
Second

Insert terminal screw into mounting hole of auxiliary contact to be attached to starter.



Then

Screw terminal screw into stationary contact block and fasten auxiliary contact to starter.



**Ready
to
Wire**

Allen-Bradley auxiliary contact is now ready to be wired for any auxiliary pilot circuit.

**Auxiliary Contacts
easily changed from
n.o. to n.c. operation**

The new Allen-Bradley auxiliary contact may be instantly changed from n.o. to n.c. contact. Removal of one screw permits the instant reversal of the contacts in the contact block. There is no small parts to lose.

These auxiliary contacts are available for all Allen-Bradley sizes 0 and 1 controls, including contactors, reversing switches, combination starters, Bulletin 709 solenoid starters, and Bulletin 609 manual starters.

Allen-Bradley Co., 1316 S. Second St.
Milwaukee 4, Wisconsin

ALLEN-BRADLEY
SOLENOID CONTROLS



STRETCH OUT YOUR STAINLESS, TOO

There *are* ways to stretch out your supply of stainless.

For example, you may be using a grade or finish of stainless that is in extreme demand when another similar one, not as tight, could do the job adequately.

Our metallurgical staff and stainless fabricating specialists are ready to help you look into this matter and to advise you on more readily-available types of stainless that will do a satisfactory job. Feel free to call on us for this specialized help.

CRUCIBLE

first name in special purpose steels

STAINLESS STEEL

52 years of *Fine* steelmaking

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.
TAL STAINLESS • REX HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

ELECTROMET Data Sheet

A Digest of the Production, Properties, and Uses of Steels and Other Metals

Published by Electro Metallurgical Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. • In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario.

COLUMBIUM and TANTALUM

Strategic Combination for Imparting Strength and Stability to High-Temperature Metals

Gas turbines for jet-aircraft engines, and for other similar engines being developed for marine and railway transportation, have greatly increased the demand for high-temperature metals. The present most satisfactory metals are either iron-base, nickel-base, or cobalt-base. They are used in the form of castings and hot-worked products, such as forgings, bars, and sheets.

Many of these special metals contain columbium because of its beneficial effect on high-temperature strength in both cast and wrought products. Investigations have shown that columbium is one of the key alloys for imparting high-temperature strength and stability in metals suitable for operating temperatures up to 1500 deg. F. and above.

Need for New Alloy

Originally, a ferrocolumbium alloy containing approximately 55 per cent columbium and 5 per cent tantalum was employed in the production of many of these high-temperature metals. However, with the increased use of high-tem-

perature metals and columbium-bearing 18-8 stainless steels, the demand for columbium exceeded its availability.

ELECTROMET's Research Laboratories began investigations to ascertain whether an alloy containing more tantalum and less columbium would be equally satisfactory for producing the high-temperature metals. Columbium and tantalum alone, as well as combination alloys of columbium plus tantalum, were tested.

Results of Tests

The alloy N-155 was selected for tests. It is an iron-base alloy with the following approximate analysis:

Chromium	20 per cent
Nickel	20 per cent
Cobalt	20 per cent
Tungsten	3 per cent
Molybdenum	2 per cent
Columbium	1 per cent
Nitrogen	0.15 per cent
Carbon	max. 0.35 per cent

The data in the table below describe the mechanical properties, at room temperature, of this low-carbon N-155 alloy

modified with columbium and tantalum alone, and with combinations of columbium plus tantalum. The metal modified with columbium has good strength and high ductility at room temperature. These same good properties are obtained when tantalum, or tantalum plus columbium, is substituted for the columbium.

Stress-to-rupture tests were also conducted on these same modified low-carbon N-155 alloys at 1350 and 1500 deg. F. The data show (see table that when the columbium is replaced with a mixture of columbium plus tantalum, the strength of the metal remains substantially unaffected at 1350 and 1500 deg. F. Also, when all of the columbium is replaced with tantalum, the strength of the metal at 1500 deg. F. is just about equal to that obtained with columbium. Hence, from the standpoint of high-temperature strength, columbium and tantalum can be used interchangeably or in combination.

Help to Industry

ELECTROMET has developed an alloy containing approximately 20 per cent tantalum and 40 per cent columbium for use in high-temperature metal and stainless steels. It is known as ELECTROMET ferrotantalum-columbium.

Industrial experience with this comparatively new alloy has confirmed the favorable results of the experimental work. The alloy has already aided considerably in augmenting the supply of columbium alloys, since it is just as effective as ELECTROMET ferrocolumbium with 50 to 60 per cent columbium for giving strength at high temperatures.

Furthermore, the new alloy is preferred because of its greater availability. It should be added to the deoxidized metal bath to obtain the best results. A recovery of about 10 per cent for the columbium and 50 per cent for the tantalum may be expected.

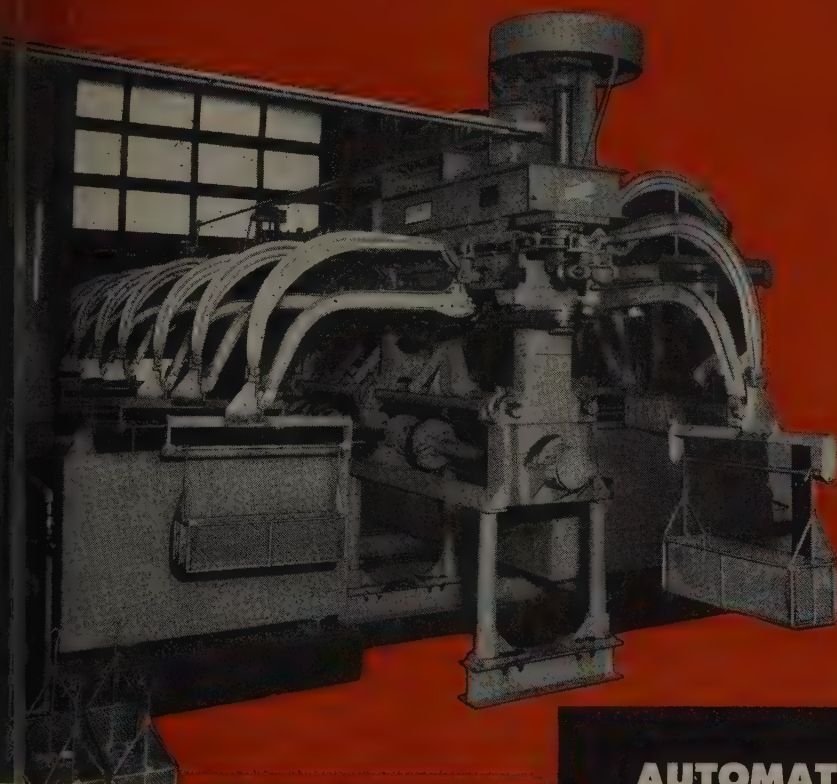
For further information regarding alloys for high-temperature metal, write to the nearest ELECTROMET office in Birmingham, Chicago, Cleveland, Detroit, Houston, Los Angeles, New York, Pittsburgh, or San Francisco. In Canada: Welland, Ontario.

Properties of Modified N-155 Alloys Compared*

Typical Analysis, %**	With Columbium	With Columbium and Tantalum		With Tantalum
Columbium	1.13	0.58	0.49	....
Tantalum	0.08	0.64	0.53	1.47
Carbon	0.12	0.13	0.13	0.12
Nitrogen	0.13	0.14	0.14	0.14
At Room Temperature				
Tensile Strength, psi	119,000	123,200	117,500	122,100
Yield Strength, psi	56,700	59,500	52,000	59,100
Elongation in 2 in., %	52	47	57	54
Reduction of Area, %	69	65	69	56
At 1350 deg. F.				
Stress to Cause Rupture, psi				
In 100 hr.	31,000	34,000	33,500	....
In 1000 hr.	23,000	25,000	23,000	....
At 1500 deg. F.				
Stress to Cause Rupture, psi				
In 100 hr.	20,000	20,000	20,500	20,000
In 1000 hr.	15,000	14,000	15,500	15,000

* Tests made on standard samples from one-inch round bars, water-quenched from 2250 deg. Fahrenheit.
** Composition of the base alloy is given in the text.

The term "Electromet" is a registered trademark of Union Carbide and Carbon Corporation.



Stevens full Automatic at National Cored Forgings Company

AUTOMATIC BRIGHT DIP AT NATIONAL CORED FORGINGS CO.

**GIVES HIGH PRODUCTION
—UNIFORM RESULTS
—IN LESS SPACE!**

Yes, that's the report of National Cored Forgings Company of South Norwalk, Conn. More work . . . better results . . . with less space . . . thanks to Stevens equipment!

National Cored Forgings Company produces items ranging from lens caps to padlock cylinders. In each case, bright dipping is a necessary step to a bright finish.

That's where Stevens pays off!

Automatic bright dipping assures uniform results PLUS high production. A Stevens machine supplied the answer to National Cored Forgings Company's high production bright dipping problem.

Why not let Stevens help you solve your plating problems. Call your Stevens representative or write direct. Frederic B. Stevens, Inc., Detroit 16, Michigan.

**FREDERIC B.
STEVENS**
INCORPORATED
EVERYTHING FOR METAL FINISHING
DETROIT 16, MICHIGAN

BRANCHES: DETROIT • BUFFALO • CLEVELAND • NEW HAVEN • INDIANAPOLIS
IN CANADA: FREDERIC B. STEVENS OF CANADA, LTD., TORONTO • WINDSOR



EASY WAY TO HIT PEAK PRODUCTION!

In this well-known meter plant, as in hundreds of efficient shops, they're jacking up drilling output this simple way: install the easy-handling multiple spindle "Buffalo" Drills your operation requires. You not only eliminate waste setup motions, but you get better accuracy, less worker fatigue and longer drill life.

In the photo above, the men on the four-spindle "Buffalo" No. 22 Drills are able to set up as many as four different drilling, tapping and reaming operations. Production flows right down the line easily and with minimum delays between operations. All controls and adjustment cranks are easily reached, so that these large-capacity machines are as easy to handle as smaller sensitive drills. Let us recommend a drilling arrangement to help cut *your* drilling time and cost!

MULTIPLE SPINDLE

"Buffalo"

**No. 22
DRILL**



"Buffalo"

MACHINE TOOLS

BUFFALO FORGE COMPANY

158 MORTIMER STREET

BUFFALO, NEW YORK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

DRILLING

PUNCHING

SHEARING

CUTTING

BENDING

Easy on ..to Stay on..

yet easy Off..

Republic Upson "Nylok*" Nuts

Easy to start a Republic Upson "Nylok*" Nut... either end is "up"... no special tools or special techniques.

Wherever you stop wrenching, that's where the nut stays... even under severe vibration. The

nylon plug in the side makes the nut hold tight.

And when it's time to remove a Republic Upson "Nylok*" Nut, just back it off. The nylon plug can't gall, can't rust. Best of all, the nut is ready to re-use...

SIZES

Light series tapped $\frac{1}{4}$ " thru $\frac{3}{8}$ "
Light thick series tapped $\frac{1}{4}$ " thru $\frac{1}{2}$ "
Regular sizes tapped $\frac{1}{4}$ " thru $\frac{1}{2}$ "
Heavy series tapped $\frac{1}{4}$ " thru $\frac{1}{2}$ "

12 WAYS BETTER

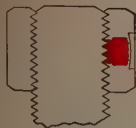
Assemble from either end	No special tools
Can be re-used	One piece
Non-galling	Ideal for mechanical feeding
Best wrenching characteristics	No lubricant needed
Won't damage threads	Cold-forged
No special know-how	Lock in any position

Write for samples... tell us sizes you use.

REPUBLIC STEEL CORPORATION

Bolt and Nut Division • CLEVELAND 13, OHIO

Export Department: Chrysler Building, New York 17, N.Y.



How the "Nylok" principle works
A nylon plug inserted in one of the sides of the cold-forged nut forces the nut tight against the opposite threads as the nut is turned on.

*U.S. Pat. No. 2,462,603 and pending applications

Republic
UPSON QUALITY **BOLTS AND NUTS**



Refractory Concrete
in stacks
KEEPS POWER UP
for U. S. Steel



FAST WORK—Each 14' i.d. x 61' 6" high stack got 12½" lining of Refractory Concrete in just 4 days after reinforcing wire mesh was attached. Concrete made with Lumnite cement and traprock was "shot" on by cement gun

You're looking down

the smooth, jointless Refractory Concrete lining that protects a power stack at the new Fairless Works. It's the way U. S. Steel assures long, trouble-free stack life. Here's why:

Saves time. Fast, monolithic construction is further speeded by the ability of Refractory Concrete made with Lumnite* Cement to reach service strength in 24 hours or less! *Helps draft.* The one-piece lining prevents "breathing." *Gives long-lasting protection.* Lumnite-made Refractory Concrete resists attack of sulphurous gas and abrasive fly ash, takes heat to 2600°F, has low volume change and withstands thermal shock.

Whether you're lining or rebuilding a stack, it will pay you to look into the enviable record of Refractory Concrete made with Lumnite calcium-aluminate cement—in power, metals and refining industries . . . in fact, wherever heat, corrosion or abrasion are problems.

FOR CONVENIENCE, you may prefer to make Refractory Concrete with prepared castables (Lumnite Cement plus aggregates selected for specific temperature and insulation service—add only water). They're made by refractory manufacturers and sold through their dealers. For more information, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

*"LUMNITE" is the registered trade mark of the calcium-aluminate cement manufactured by Universal Atlas Cement Company

ATLAS®

LUMNITE for INDUSTRIAL CONCRETES

REFRACTORY, INSULATING, OVERNIGHT, CORROSION-RESISTANT



"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network

RACE HORSE MOTOR SPEEDS STEPPED DOWN TO A CRAWL WITH LINE-O-POWER

24WL Right angle Line-O-Power Drive
on a Chain Conveyor



Triple reduction
straight line drive



Double reduction
right angle drive

FOOTE BROS.

For Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION
454 South Western Boulevard • Chicago 9, Illinois

On conveyors or other materials-handling equipment, slow speed is essential. With Line-O-Power Drives, it is possible to transform high motor speeds into almost any desired slow end speed.

Here, for example, is a compact Line-O-Power Drive on a chain conveyor. Low in original cost, it provides economical service day in and day out with minimum attention. These drives have proved their value to industry because of their compact size, sturdy construction and high efficiency.

First reduction is taken through precision worm gearing, second and third reductions through Duti-Rated helical gearing. Duti-Rated Gears have file-hard tooth surfaces with ductile cores that permit heavy loading and yet assure long life. Available for straight line service — for right angle service — or for vertical application.

FOOTE BROS. GEAR AND MACHINE CORPORATION
Dept. X, 4545 South Western Boulevard, Chicago 9, Illinois
Please send me Bulletin LPB on Line-O-Power Drive.

I am interested in

☐ Straight line drive ☐ Vertical drive ☐ Right angle drive

Name.....

Company.....

Position.....

Address.....

City..... Zone..... State.....

*there's real ventilation-
24 air channels
in every H-VW-M Ruff-L-Buff!*



Evenly distributed ventilation, too. That means air-cooled operation even under severest use—more pressure without burning—faster cut—more composition mileage—and longer life for the buff. Air rushes into those extra large holes at the center, circulates right through the wheel, and escapes at the face. This constant flow of air—plus the fanning effect of the ruffles at the face—*eliminates excessive heat.*

Now take a look at the rest of these features: There's an extra safety factor in the rugged steel ring that anchors the cloth at the center; every buff is perfectly balanced; and that exclusive H-VW-M Red-E-To-Use Face is all set to take composition without raking or truing. Ruff-L-Buffs are available in a wide variety of types and weights for any application—to do a *better* buffing job for *you*.

Top quality buffs are just one of many results of over eighty years of constant electroplating and polishing development—a continuing policy summed up in H-VW-M Platemanship... your working guarantee of the best that industry has to offer—not only in buffs—but in every phase of plating and polishing.



For full information on Ruff-L-Buffs as well as all H-VW-M buffs ask for Bulletin B-100.

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.
PLANTS AT: MATAWAN, N. J. • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • BOSTON • CHICAGO • CLEVELAND
DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • MATAWAN
MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH
ROCHESTER • SPRINGFIELD (MASS.) • STRATFORD (CONN.) • UTICA



H-VW-M

Here at Sterling Bolt Co., a single, integrated **DEPENDABLE** source can supply you with more than **200,000** stock and standard sizes in Bolts, Nuts, Screws and Washers for your specific needs.

For more than 35 years Sterling Bolt has been a prime supplier of metal fastenings to America's best-known companies—because Sterling facilities combine both warehouse and mill, giving you advantages of **PROMPT SERVICE** and **COMPETITIVE DISCOUNTS**.



try these for

SIZE



THE INDUSTRIES WE SERVE— AND SERVE WELL!

Refrigeration • Pumps • Cranes • Elevators
• Tractors • Trailers • Conveyors
• Mining Equipment • Blower & Fan
Equipment • Diesel Engines • Bodies—
Motor Truck & Trailer • Electrical
Manufacturing • Air Conditioning
• Material Handling Equipment
• Machinery Manufacturing • Radio &
Television • and many others—

Interested in Cutting Costs?

No need to count on expensive, time-consuming specials when Sterling Bolt Standardized Bolts, Nuts and Screws can fit your job—200,000 to one!

Send your inquiry or order **TODAY**—to the

STERLING BOLT co.

401 West Erie Street, Chicago 10, Ill.
Telephone: **SUPERIOR 7-3000** • Teletype: **CG 488**
Offices: Cincinnati, Indianapolis, Milwaukee, St. Louis
Manufacturing Plants in Chicago, Milwaukee, St. Louis

Quantity
PRODUCTION
of
GREY IRON CASTINGS

*
**ONE OF THE NATION'S
LARGEST AND MOST MODERN
PRODUCTION FOUNDRIES**

*
ESTABLISHED 1886

THE WHELAND COMPANY
FOUNDRY DIVISION

**MAIN OFFICE AND MANUFACTURING PLANTS
CHATTANOOGA 2, TENNESSEE**

Again in '53 YALE sets the pace

Run this great YALE truck every test you can. Run it fully loaded on ramps, in and out. See the power it delivers... the economy it gives. Let operators test for smoothness... for maneuverability... for safety... and you'll see why it's the best truck of this or any other year.

Features no other truck combines

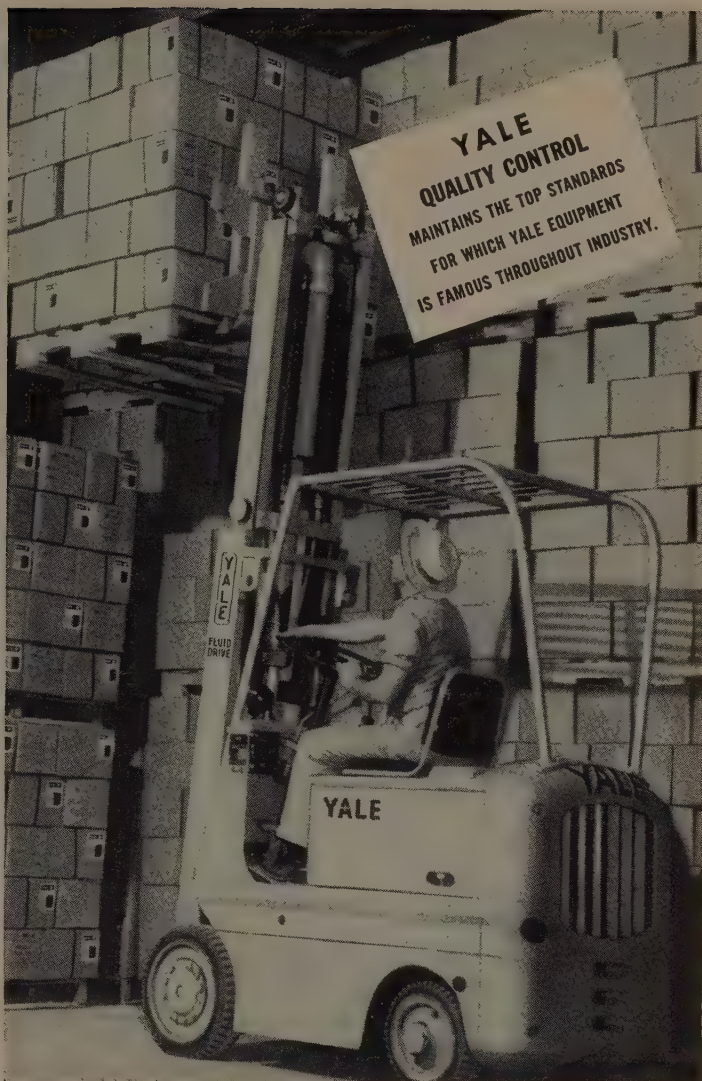
Fluid Drive... gives 3 to 8 times longer clutch life

65 HP industrial engine built for rugged continuous service

Automotive Type Brakes with extra braking surface

Shockless steering... for greater operating ease and safety

Hypoid Gears oil-sealed against dirt and dust, give drive 30% more strength against shock loads



A line that meets every materials handling need

Whatever type of truck will serve you best—Gas, Electric or Diesel powered—you'll find it in YALE's comprehensive line.

Also ask for full information on the numerous attachments Yale makes available for special handling problems.

YALE * MATERIALS HANDLING EQUIPMENT

MAIL THIS COUPON TODAY

The **YALE & TOWNE** Manufacturing Co., Dept. 82

Roosevelt Blvd. and Haldeman Ave., Phila. 15, Pa.

☐ Please send me

The Picture Story of Yale Materials Handling Equipment

☐ Please have your local representative call for an appointment

Company _____

Name _____ Title _____

Street _____ City _____ State _____

In Canada write: The Yale & Towne Mfg. Co., Box 337—Postal Station "A"—Toronto

registered trade mark

Gas and Electric Industrial Trucks • Worksavers • Hand Trucks • Hand and Electric Hoists • Pul-lifts

TEAMWORK

IS ONE OF
OUR VITAL
INGREDIENTS

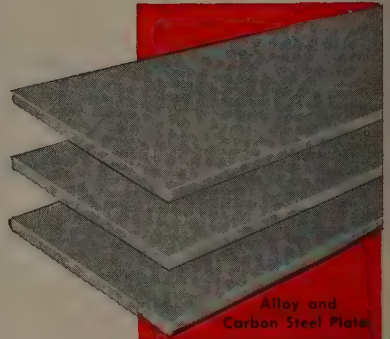


When you place an order for alloy steel plates with Claymont you get the benefit of close-knit, coordinated teamwork that assures painstaking supervision on every order, large or small.

Right down the line, starting with our front office, your order gets personalized attention from our engineers, metallurgists, laboratory analysts, and skilled workers who make your steel and roll your plates.

You'll find it's good business to entrust your specialized needs in alloy steel plates to Claymont. That way, you're always sure of plates that are truly tailored to your individual requirements.

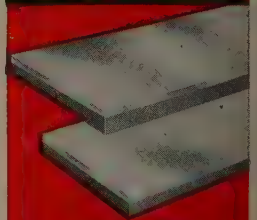
Write or call Claymont Steel Products Department, Wickwire Spencer Steel Division, Claymont, Delaware.



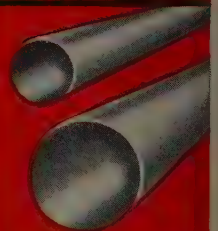
Alloy and Carbon Steel Plate



Flanged and Dished Heads



Stainless-Clad Steel Plates



Large Diameter Welded Steel Pipe

THE COLORADO FUEL AND IRON CORPORATION • Denver, Colorado

THE CALIFORNIA WIRE CLOTH CORPORATION • Oakland, California

WICKWIRE SPENCER STEEL DIVISION • Atlanta • Boston • Buffalo • Chicago • Detroit • New York • Philadelphia

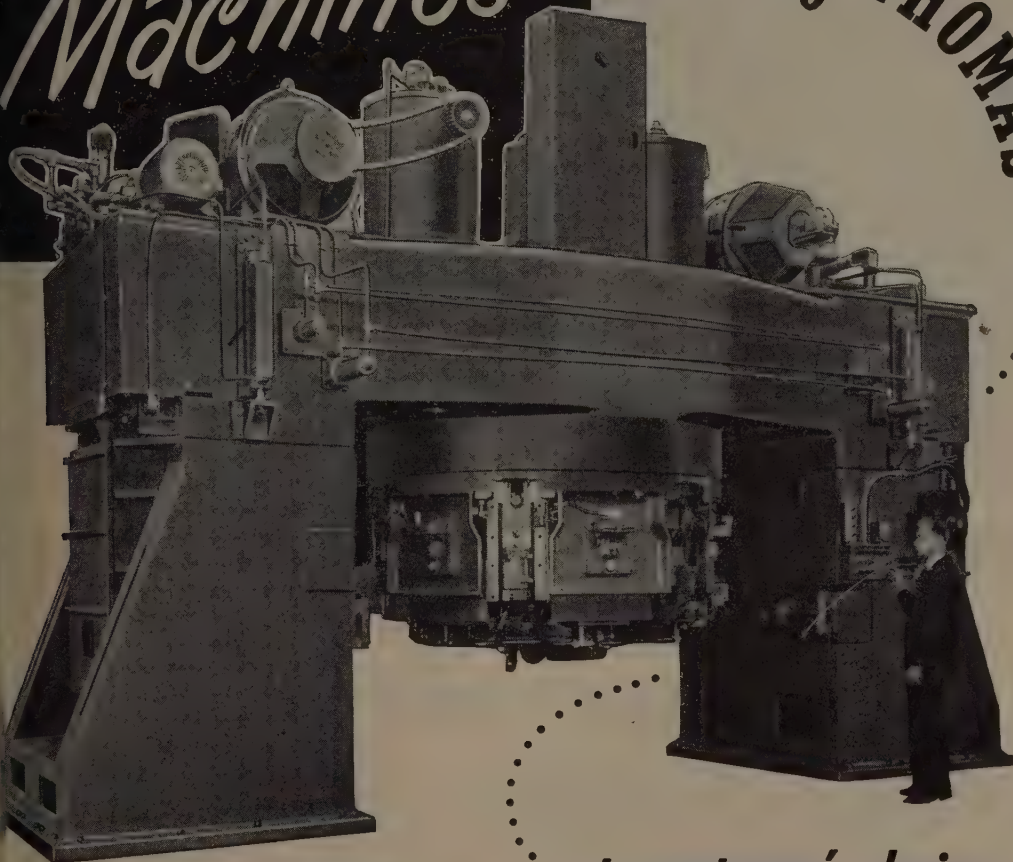
CLAYMONT STEEL PRODUCTS

PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION



Special Machines

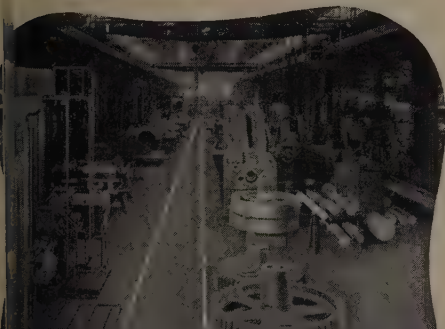
built by THOMAS



to customer's designs
and specifications

The six-footer at the controls in this picture shows the size of this special Thomas-built machine. It is a typical example of how Thomas can build special machines to customer's designs and specifications.

If you are in the market for special machinery or parts, call on the experienced Thomas organization.



VIEW OF CENTRAL AISLE, MAIN PLANT

Thomas has the equipment and specialized technical experience to help in building any special machinery you may need.

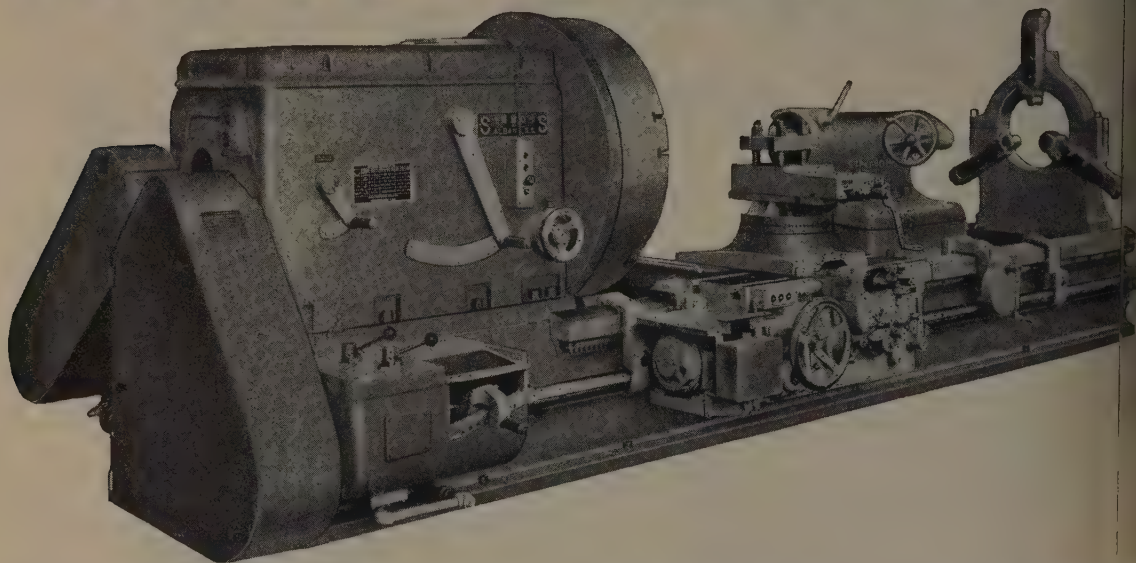
THOMAS

MACHINE MANUFACTURING CO.

PITTSBURGH 23, PA

UNES • SHEARS • PRESSES • BENDERS • SPACING TABLES

NEW DESIGN



EXTRA-HEAVY ENGINE LATHES

IN 48-54-60" SWING

MORE POWER + MORE RIGIDITY

Here's the strength and power you need to push carbide tools through a full range of speeds and feeds

Want proof that this new engine lathe can produce your heavy facing, turning and threading work in a hurry? Just look at these new features:

Main drive motors now available in 30, 40, 50 or 60 HP. The wider bed now has a strength-giving continuous flange along its underside. Complete new gear box provides a range of threads from $\frac{1}{2}$ to 56 per inch. Lead screw is now $3\frac{1}{2}$ " in diameter; tailstock spindle has been increased to 7" diameter. Anti-friction bearings throughout.

Can be modified for your special needs

These standard lathes can be readily adapted to your particular production plans. Our engineers will work with yours to bring it about quickly and economically.

The next step? Write, wire or phone for more details. It's your *first* step towards increased output or heavy turning, facing or threading work.

FOR MORE INFORMATION:

Simmons Machine Tool Corporation

Main Office and Plant: 1755 N. Broadway, Albany 1, N.Y.

Export Office: 50 East 42nd Street, New York, N. Y.

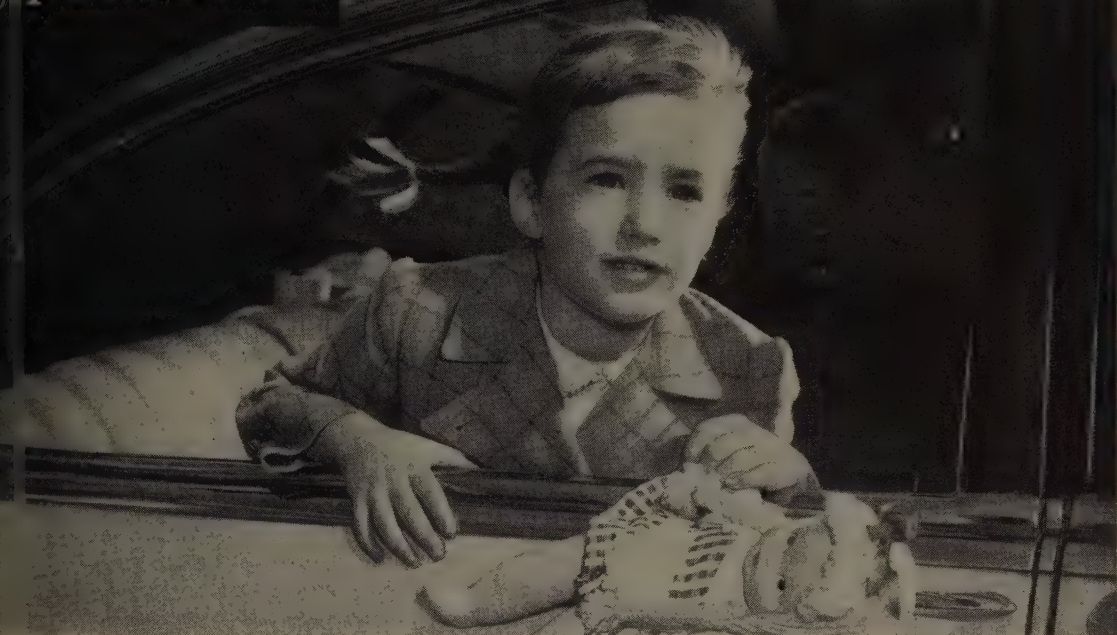
Philadelphia Office: Phone Victor 8-3133 • Pittsburgh Office: Phone PENhurst 1-3700

Specifications for Simmons Extra Heavy 48" Engine Lathe

- RANGE** Swing over bed ways: 51"; over carriage bridge: 36"
Distance between centers, 20 ft. bed: 10'
- SPEED** Range with variable voltage drive: RPM 1 to 144; through face plate: RPM 1 to 44
With direct current: RPM 3 to 144; through face plate: RPM 3 to 44
- HEADSTOCK** Hole through spindle, dia. 4"; taper of centers, Morse No. 7
Diameter of face plate: 48"
Internal gear, tooth face: $5\frac{3}{4}$ "
Headstock bearing on bed: 56"
Spindle bearing, dia. front: $11\frac{1}{4}$ "; diameter rear: 8"
- BED** Bed's width across top of ways: $46\frac{1}{2}$ "
Depth of bed: $25\frac{3}{4}$ "
Carriage length on bed: 60"
Width of carriage bridge: 20"
Length of cross slide bearing: 29"
- FEEDS** Feeds and threads: 56; range of feeds, normal: .004 to .504"; optional: .009" to 1"
Lead screw dia.: $3\frac{1}{2}$ "; range of threads: $\frac{1}{2}$ to 56
Lead screw, double thread: 1" lead
- TAILSTOCK** Tailstock spindle dia.: 7"; length: 36"; travel: 20"
Tailstock length on bed: 32"
- MOTORS** Main Drive HP: 30, 40, 50 or 60
Carriage traverse: 3 HP, RPM 1200
Headstock lubrication: $\frac{1}{2}$ HP, RPM 1800
- WEIGHT** Weight of lathe 20' bed: 44,000 lbs.
Each additional 5' length: 4,500 lbs.
Cubic contents 20' bed: 1,300 cf

Also available in 54" and 60" lathes. All can be adapted for special purposes.

Carpenter A. E. S.*



Life Saver for Small Fry

*Another example of how Carpenter
*Application Engineering Service
is working for industry*

You know how youngsters are on a trip—they love to be near the window to make sure they see everything whizzing by. But that can be dangerous . . . a door can fly open, a tragedy can strike.

That's why this safety door lock was invented. Quickly installed, it keeps children in . . . enables them to enjoy the trip safe and secure. To open the door, the driver simply pulls a release knob. But the production problem is as simple as that.

The material for the lock had to be economical to produce, had to provide high strength, corrosion resistance and a bright finish. Cold rolled steel,

chrome plated, was tried but it just couldn't make the grade.

Then Carpenter was called in and Application Engineering Service went to work. Results: They used Stainless No. 6 (Type 430), a bright, high-strength, easy-working Stainless produced by Carpenter for just such jobs. No. 6 met all the requirements . . . and made the lock a real sales winner.

Here is another example of how Carpenter A.E.S. is working with industry to unearth new ways to make products more functional, more salesworthy, more economical to produce. You can count on this Carpenter service to help bring these advantages to your plant, too. It goes to work as soon as you get in touch with your Carpenter Mill-Branch Warehouse or Distributor. THE CARPENTER STEEL CO., 139 W. Bern St., Reading, Pa.

Carpenter

STEEL

Tool, Alloy and Stainless Steels

Pioneering in Improved Tool, Alloy and Stainless Steels Through Continuing Research



Checking Coast to Coast for Your Steel Requirements

Business executives and buyers, faced with the problem of getting steel from stock under today's spotty supply situation, are finding Ryerson a helpful source.

True, our stocks are still unbalanced from a size standpoint—a condition which, we believe, prevails throughout the industry. But the Ryerson plant near you does have a fairly good tonnage on hand and it does offer you a special service that's often helpful.

As part of the world's largest steel distributing organization, your local plant can call on the resources of fourteen other Ryerson plants, each an independent operating unit but all interconnected and ready to cooperate.

Thus, if the steel you must have, or a practical alternate for it, is not on hand locally, there is still the chance that your requirement may be met from the stocks of

another Ryerson plant. We are always glad to check them all when necessary. And remember—Ryerson has always been notable for prompt, reliable delivery. When we have the steel, we get it to you quickly.

So multiply your steel buying efforts and make one call do the work of many. Contact your nearby Ryerson plant for all your steel needs. Our ability to help may surprise you.

PRINCIPAL PRODUCTS IN STOCK

CARBON STEEL BARS—Hot rolled and cold finished

STRUCTURALS—Channels, angles, beams, etc.

PLATES—Many types including Inland 4-Way Safety Plate

SHEETS—Hot and cold rolled, many types and coatings

TUBING—Seamless and welded, mechanical and boiler tubes

ALLOYS—Hot rolled, cold finished, heat treated—and tool steel

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

REINFORCING STEEL—Bars and accessories, wire mesh, etc.

BABBITT METAL—Lead base, five types

RYERTEX—Plastic bearing material

MACHINERY & TOOLS—For metal fabrication

RYERSON STEEL

JOHN T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT
PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE SEATTLE

February 2, 1953

More Steel

Steel supplies are improving steadily. Latest proof is the second-quarter allocations for consumer durable goods, except autos, radios and television sets. For the more essential hard goods, allotments for the second quarter are the same as for the first. For less essential items, the dole goes up 60 to 65 per cent from the first to the second periods. Second-quarter copper and aluminum allocations are about the same as the first, but prospects are good for supplemental tickets later. For hard goods will go some 892,000 tons of carbon steel, 43.7 million pounds of copper and copper-base alloy brass mill products and 72 million pounds of aluminum.

A New Stainless?

NPA is strongly urging stainless producers to turn out a new stainless steel, using chromium and manganese, with a low nickel content. Industry men are reluctant to do so, but they may have to unless nickel supplies improve more rapidly than they have been.

Special Deal on Foreign Investments

Look for the 83rd Congress to permit special tax treatment to those Americans who invest domestic money in industry abroad. The legislators want to cut foreign aid and believe that increased private investment in foreign business will offset the drop in federal help. Congressmen will rely heavily on the recommendations for a new private investment policy by August Maffrey, a vice president of Irving Trust Co. and adviser to Mutual Security Administration.

The Trend Reverses

Small business is getting more government contracts. The dollar value of orders awarded to small business in the first quarter of fiscal 1953 aggregated 24.2 per cent, the highest quarterly figure since July, 1950. It also reverses the downward trend in small-business awards which slid to 15.9 per cent during January-June, 1952.

Facts of Financing

Small business' difficulties in borrowing money are further accentuated by the recent increase in bank discount rates. Nor is small business able to get funds more easily on the securities market, claims the House Small Business Committee. In 1952 corporations raised \$7 billion through new security issues, compared to \$6.4 billion in 1951. The overwhelming bulk of that was for larger companies. The committee concludes: "Small firms need to retain more of their earnings than is possible under existing tax laws."

Preview on Demands

Demands by the CIO's electrical workers are typical of what most unions will ask in 1953: More pay, productivity increases, a new pension system, social benefits and the union shop (if it's not already in your contract). What's unique about the IUE demands is that they were made public far in advance of contract reopening. The Gen-

eral Electric Co. contract provides for reopening on wages only Mar. 15. The Westinghouse Electric Corp. contract can be reopened on wages in April.

The Forgotten Man

The talented executive is today's forgotten man. The \$25,000-a-year official has only \$9361 left in real 1939 dollars after he's put through the wringer of high taxes and inflation. In 1939 he had \$22,000 left. Today he has to earn \$100,000 to have that much real buying power. Unless the executive who enjoyed a \$25,000 salary in 1939 has been raised to \$100,000, he has lost ground. So say William J. Casey and J. K. Lasser in "Executive Pay Plans," a 160-page study published by Business Reports Inc.

Veterans: More Voice in Washington

The veterans' voice is going to be felt more and more in Washington from now on. And industry should take that influence into account in any legislative proposals it has. There are now 19.7 million men and women with military service in the nation's population. Of the 3000 bills thus far introduced in the 83rd Congress, more deal with veterans' affairs than any other subject.


Straws in the Wind

Material needs for some electric power expansion will be placed on the same footing as direct military and AEC programs through a new "E" rating of special priorities now being worked out by NPA . . . Capital investment in atomic energy will be about \$7.5 billion when presently appropriated construction is completed, five times what it was six years ago . . . Five major steel companies and three subsidiaries, said to do 75 per cent of the domestic steel drum business, are charged by the Federal Trade Commission with setting "standards" for pricing purposes in production of steel drums and with rigging sales prices . . . Nonfarm employment rose to an all-time high of 48.8 million in mid-December, 1952; up 1.2 million from a year earlier with two-thirds of the increase reported in manufacturing industries.

What Industry Is Doing

What you can look for from Washington as the Republicans finish with the preliminaries and get down to the business of making legislation is capsulized on p. 71 . . . Checklist on legislation which has been introduced in the 83rd Congress (pp. 72-73) . . . A DPA survey reveals the partial answer to the question of whether the U.S. has enough steel capacity (p. 74) . . . Glut of orders from the automotive, farm implement and appliance industries puts the pressure on spring manufacturers (p. 75) . . . Learning to read faster is a "must" in this wordy age (p. 81) . . . Railroads expect to spend about \$1.4 billion on capital equipment this year (p. 82).

UNITED WASHERS SHIMS AND SPACERS



At our Chicago or Cleveland plants we make washers, shims and spacers:

- from $\frac{3}{16}$ " to 14" diameters;
 - from .002" to 1" thick;
 - from all available metals;
 - in round, square, oval, crimped, and irregular shapes;
 - some that are hardened and ground to precision standards;
 - others with spring tension;
 - for every assembly requirement.
- That's why "UNITED" is a good source.

*—when you think of
fasteners think of United*

**SCREWS • NUTS • WASHERS
CLUTCH HEAD SCREWS
STAMPINGS**

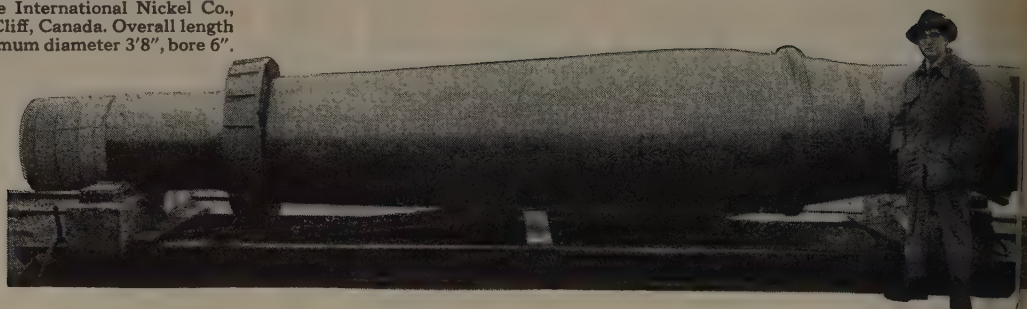
United Screw and Bolt Corporation

Chicago 8

Cleveland 2

New York 7

GIANT NICKEL STEEL SHAFT...
 installed as a replacement on a 54"
 crusher, to assure maximum service
 life for The International Nickel Co.,
 at Copper Cliff, Canada. Overall length
 21'6", maximum diameter 3'8", bore 6".



How Nickel Helps a Crusher PUT THE SQUEEZE ON COSTS

Many forgings are so large that only part of the mass can be worked under the press before the steel has to be reheated. These large sections of steel, typified by this crusher shaft, so limit the cooling rate as to make liquid quenching ineffective.

Consequently, improved strength, hardness and other properties that prolong life of large forgings are much more dependent upon wise selection of alloy content than is the case with small forgings.

Because of these facts, the large crusher shaft shown above was forged from a 160,000-pound ingot of 2¾ per cent nickel steel... produced, rough-turned and heat-treated by the Bethlehem Steel Company, and finish-machined by the Traylor Engineering Company of Allentown, Pa.

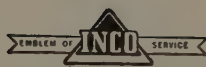
After normalizing and tempering, two tests on longitudinal specimens, taken from a prolongation at mid-radius, averaged as follows:

Tensile Strength	80,000 p.s.i.
Yield Strength	51,000 p.s.i.
Elong. in 2"	28.0%
Red. of Area	58.3%

The strengthening effect of nickel on ferrite is independent of carbon content or heat treatment of the steel, and its effectiveness in reducing the rate and temperature of the upper transformation, induces better response to the necessarily milder heat treatments used.

Nickel alloy steels may help you obtain peak performance from vital parts of your products or equipment. Send us the details of your problems for our suggestions. Write us now.

At present, most of the nickel produced is being diverted to defense. Through application to the appropriate authorities, nickel is obtainable for the production of engineering alloy steels for many end uses in defense and defense supporting industries.



THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N. Y.



February 2, 1953

Deflating an Obsession

A problem with which the new administration must cope sooner or later is that of the encroachment of the federal government upon activities that really belong to the states or other regional governments or to private business enterprises. During the last 20 years the new dealers and fair dealers—usually under the pretense that an alarming crisis justified the act—have transferred to Washington jurisdiction hundreds of rights, authorities, taxing privileges, properties and sundry prerogatives and activities which do not belong to the federal government by even the widest stretch of the imagination.

For instance, consider the Tennessee Valley Authority. Originally Franklin D. Roosevelt promoted it as a sound flood control project. Incidentally, he suggested that it would provide a measuring stick by which it would be possible to determine whether or not the rates charged by privately owned public utilities were "excessive." Throughout the years, TVA has been developed far beyond its original purpose. Once limited to hydroelectric power, it now is expanding its steam power facilities in direct competition with private enterprise. Much of the TVA activity could be transferred to privately owned utilities with great benefit to everybody.

In petty and petulant mood, former President Truman turned over the tidelands to the Navy. He did so in the naive belief that custodianship of something by the federal government is more in the public interest than custodianship of it by its rightful owner, whether it be a state or other local subdivision. The obsession of Roosevelt and Truman that everything that is worthwhile doing should gravitate to Washington officialdom was a ghastly mistake.

It can be corrected by a careful, painstaking study of functions now performed by the federal government and determining which should be returned to their rightful jurisdictions. In the process, many things now done clumsily by Washington can be shifted to local governments or to private enterprise, where they will be done more efficiently and in many cases under circumstances that will yield a substantial tax revenue to the federal government. Perhaps today's State of the Union message of the new President will touch upon this important problem.

EDITOR-IN-CHIEF

CC DUE FOR OVERHAUL: On the whole, American railroads are doing a remarkable job. In recent years, particularly, they have been alert to opportunities for improving

service. Through heavy purchases of equipment, they have increased operating efficiency tremendously. In 1953 they expect to invest about \$1.4 billion in capital equipment (p. 82),

which represents a slight increase over the comparable outlay in 1952.

Yet in spite of their efficiency, their expenditures for better equipment, and a 6.8 per cent increase in freight rates, Class I railroads in 1952 had a net operating income equivalent to a return of only 4 per cent on net property investment. Also, while the short-term outlook for the roads is good, the long-term prospects are clouded by limitations resulting from low profits and by oppressive and unrealistic regulation by the Interstate Commerce Commission.

Competitors of the railroads such as highway truckers, inland waterways and air transport are heavily subsidized. The eastern railroads are crusading strenuously for a complete overhaul of ICC regulation so that all forms of transportation are treated fairly. This is a reform that is long overdue.

* * *

UNION COUNTS FRIENDS: According to a report of the League for Political Education of the American Federation of Labor (p. 78), 160 members of the present House of Representatives are friendly to "organized labor," 239 unfriendly and 36 doubtful. In the previous House the score was 181, 222 and 32. In today's Senate 38 senators are rated friendly, 57 unfriendly and one doubtful, compared with 40 friendly and 56 unfriendly in the last Senate.

According to these figures, the league believes the labor movement has fewer friends among lawmakers in this Congress than in the previous one. It would be interesting to know on what basis the league determines friends and enemies. Is a "friend" one who accedes to everything that a Murray, Green, Reuther or Meany demands? Or, is he one who votes for the things that are best for union or nonunion employees in the long run? There is an important difference.

* * *

A HOUSECLEANING JOB: One wonders whether the new regime in Washington can retrieve anything constructive out of the mess that the Federal Trade Commission is in. FTC has an almost perfect record for the double cross. Some years ago, Harold Ickes requested the oil companies to do certain things to help his Interior department. They co-operated splendidly, but when it was all over, the Department of Justice entered suit against them.

In the famous Madison case, the federal judge ruled that Ickes' testimony could not be entered and the defendants were declared guilty.

Today we have a repetition of the Washington double cross. Five oil companies are on the pan for a co-operative venture suggested by one arm of the government. But another department first instituted criminal action and now pleads for civil action. The whole mess is embarrassing to our negotiations in the Middle-East and it points to the need of a thorough housecleaning of the cockeyed FTC.

* * *

QUESTIONS SINCERITY: From his office in Kansas City, ex-President Truman confided to a newspaper reporter that he doubts whether the Soviets have perfected the atomic bomb or whether they have the "know how" to make it work. It is a curious statement when arrayed against his official announcements as President of the United States that the enemy had the bomb and was making progress in atomic energy developments.

What can one deduce from this startling statement? Are we to believe that our President was doubtful of the Kremlin's progress but that he used his prestige as President to scare Congress and the public into authorizing more for defense against the potential aggressor than was really justified? His reversal of opinion is confounding.

* * *

AN UNNECESSARY LOSS: Now that the annual financial reports of many corporations are becoming available and numerous statistical records for 1952 are being completed, it is noticeable that most of these statements make reference to an unfortunate occurrence last year. No matter how good or bad was the record for 1952, the report usually says that the showing "would have been much better had it not been for the prolonged steel strike." Beyond the publicized distress caused by the strike was the loss in pay suffered by every person who was kept away from his job.

The irony of this is that everything won in the final settlement could have been gained without resort to the strike. Also ironic is the fact that a keen sufferer was Uncle Sam, whose loss in tax revenue was substantial.

Automatic Voting Machine Corporation casts its vote for **ES COMPRESSORS**

Voters in 29 different states and the Territory of Hawaii indicated their choice in the November elections by turning levers on machines made by the Automatic Voting Machine Corp. of Jamestown, N. Y. This company and its predecessors have been engaged in the development and production of automatic voting equipment since 1898.

When it came to choosing a compressor to aid in its manufacturing processes back in 1934, this leader in its field chose the leader in the compressor field . . . Ingersoll-Rand's **ES** compressor. Satisfaction was proven when the company chose a duplicate ES compressor in 1947 to take care of its increasing air power needs. Both machines have been operating since that time, supplying compressed air to punch and drill presses and a variety of I-R air tools.

The ES compressor is designed to stand up under heavy-duty, 24 hour continuous full-load service over many years. Efficiency stays high; maintenance stays low. Sizes 5 to 125 hp with pressures from 5 to 150 psi.

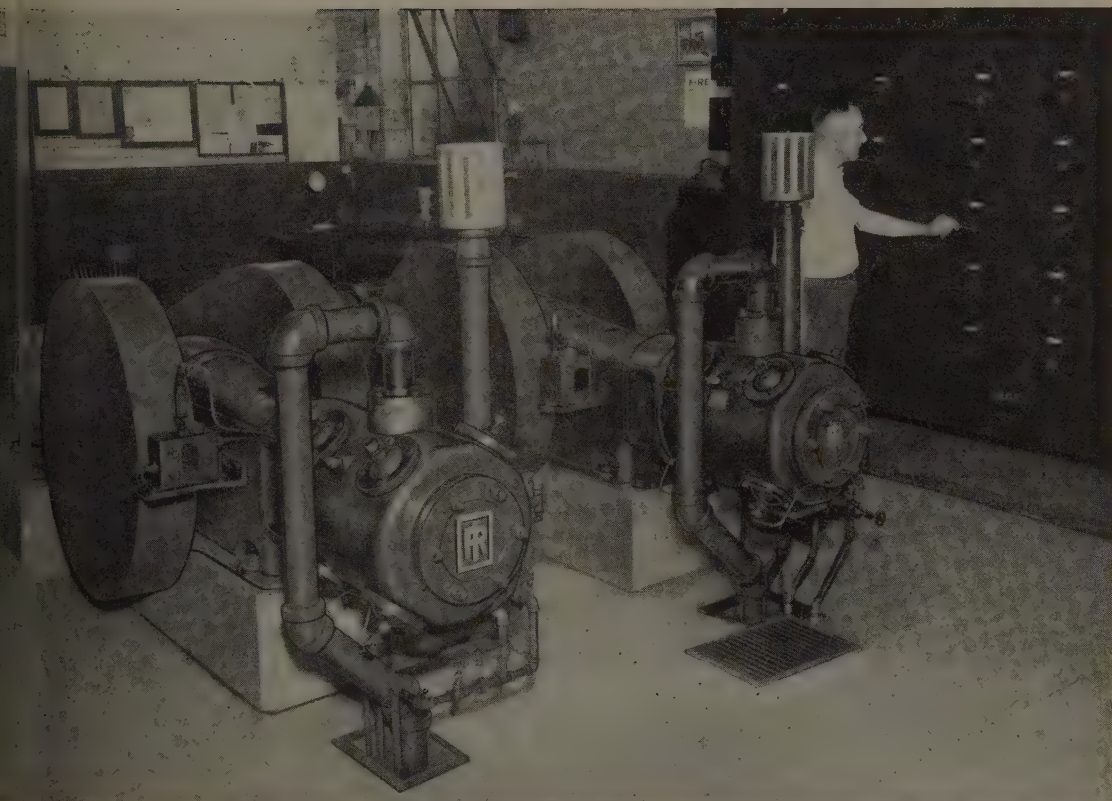
The ES is of the double-acting crosshead type and is equipped with highly efficient, durable and quiet-operating Ingersoll-Rand Channel Valves.

Whatever your compressed air requirements, Ingersoll-Rand has a size and type compressor that will best serve your needs. A call to your nearest I-R branch will bring complete details.

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

845-1





UNIFORMITY

is the rule
at INLAND

When, time after time, a steel mill product is manufactured on the same mill by the same men using raw materials from the same sources, its uniformity . . . shipment to shipment . . . is bound to be better.

INLAND

INLAND STEEL COMPANY

38 South Dearborn Street • Chicago 3, Illinois
Sales Offices: Chicago, Milwaukee, St. Paul, St. Louis,
Davenport, Kansas City, Indianapolis, Detroit, New York

What You Can Expect from Congress in 1953

Controls
Mobilization
Budget
Foreign Aid
Taxes
Labor

IDENT EISENHOWER'S of the Union address today real starting gun for 1953's tive race.

Thus far in the month-old has been devoted to getting gazed and waiting for word the White House on a spe- legislative program. While han 3000 bills have already ntroduced (see pp. 72 and 73 ose significant for industry), als are still scarce in several six legislative areas that will business the most in 1953.

Controls—Congress' problem on is complicated by disagree- among defense agencies on should be done. NPA now CMP for all but the military few related programs should pped Apr. 1. DPA believes should be kept until June 30.

for Congress to allow the ent to modify CMP if he to by Apr. 1. A new defense ll probably provide for a

"CMP" and continued con- particularly tight materials nickel. The new law can be d to have an in-event-of- ar clause that would rein- all curbs. Wage and price ions will be allowed to end tely when the authority for expires Apr. 30. Congress ermit the President to kill ooner if he wishes.

Mobilization—The 1953 mobiliza- tion directly affecting in- will relate chiefly to defense

buying and expansion of production facilities where there are still gaps. Uncle Sam is now spending for the military at the rate of \$50 billion a year, and that rate will continue or even increase in 1953. The bud- get request by Mr. Truman for \$46.3 billion in fiscal 1954 for defense won't be pared much to affect 1953 business. Congress will investigate ways to save on defense spending, but results won't come before 1954.

To fill in the gaps in the mobil- ization base, the legislators will authorize federal spending for ma- chine tools, a continuation of the present fast amortization, a con- tinuation of a modified version of the present defense loan services and specific help to be improvised where and when needed. Partic- ularly close scrutiny will be given adequacy of steel capacity (p. 74).

The Budget—Republicans will cut the Truman fiscal 1954 budget from \$78.6 billion to \$70 billion by concentrating on the \$54.2 billion allotted for defense and foreign aid. A further stretch-out in air- craft procurement could trim \$1 billion. The \$1 billion earmarked for stockpiling will be cut. Re- search and development of weap- ons, to the tune of \$1.6 billion in the budget, will be whittled by \$200 million or more.

But the big field for cuts will come in the \$7.9 billion for aid abroad. Cheaper assistance will be demanded by Congress. Pointing one way that can be done could

be an experiment in U. S. indus- trial help to Latin America (p. 73).

Foreign Aid—Congress on for- eign aid matters will listen to John Foster Dulles and Harold Stassen. They're already off on a trip to Europe. The object: To learn whether Great Britain, France and West Germany will play ball to- gether. If not, aid will be cut.

You can expect Congress also to encourage investment abroad by giving investors a better tax deal.

Taxes—The melancholy fact on taxes is this: There won't be signi- ficant cuts this year. That's de- spite Rep. Daniel Reed's bill that would cut personal income taxes 11 per cent by June 30. Republican leadership is against the move.

It's also against another Reed proposal: A constitutional amend- ment to limit federal levies on in- come to 25 per cent of an individ- ual's or corporation's earnings.

Labor—The 1953 legislation will be mild. Senator Taft will lead on the matter, and his proposals thus far are slight. Only a couple of long strikes would stiffen Con- gress. And even if we have bad strikes in coming months, don't count on legislation to restrict union's monopoly power.

On the other hand, don't expect to be bothered so much by con- gressional investigations either. The Celler committee on monopolies is dead, and that's one indication industry can expect a fair shake from the 83rd Congress.

3000 Bills Pile Up in Congress with Still More Coming

Republicans go slow pending recommendations by Eisenhower; Democrats not so wary

FROM THE 3000-odd bills introduced during the first three weeks of the 83rd Congress, STEEL has listed in the accompanying table those of special interest to the metals industries.

The great bulk of the legislative proposals dropped in the hopper is not of direct concern to business.

Long History—Some of the bills now pending—as the proposal to recognize and define the legality of freight absorption and the meeting of lower prices in competition—are based on previous study and may be enacted in their present form. Many others still are to be formulated, mainly as a result of recommendations by the Eisenhower administration and conclusions reached as the result of committee hearings. Subjects coming in this category are the excess profits tax, taxes generally, economic controls, labor-management relations, foreign aid, the Emergency Powers Continuation Act, import tariffs, re-negotiation, and ways and means of fulfilling mobilization goals.

The majority of bills introduced at the start of the session came from Democrats. Republicans showed a disposition to hold their hands pending formulation of party strategy.

Where duplicate or parallel bills have been introduced, the accompanying list mentions only the first.

Cutting Paper Work

A revision of NPA Order M-41 will free machine tool and other production equipment builders from the necessity of filing Form NPAF-62 (Manufacturers' Order Board) and Form NPAF-62A (Summary and Analysis Sheet) each month. Instead they will file these forms for the month of January, 1953, after which they need make reports only to cover metalworking machines listed on Exhibit D to Order M-41. The forms covering Exhibit D machines will be filed with the Metalworking Equipment Division on a monthly basis.

S 655-659, Taft, R., O.: To provide in five bills for 16 modifications of the Taft-Hartley Law, the most important being a reorganization and enlargement of NLRB from five to seven members and the requirement that employers as well as union officials sign non-Communist affidavits.

S 540 McCarran, D., Nev., and HR 635 Walter, D., Pa., and Teague, D., Tex.: To establish as a complete defense against price discrimination charges, price differentials made in good faith to meet the equally low price of a competitor.

S 298 Frear, D., Del.: To allow taxpayers to self-determine depreciation deductions for capital equipment in income tax returns.

S Res 25 Capehart, R., Ind., and Maybank, D., S. C.: To make a study of means of increasing our foreign trade.

S Res 14 McCarran, D., Nev.: To make a study of antitrust laws and their administration.

H Res 65 Pelley, R., Wash.: To ascertain reasons for periodical interruptions of shipping through the port of Seattle.

HR 1375 Bow, R., O.: To pay certain unrecovered costs incurred by producers of strategic and critical minerals and metals during World War II.

S 160 Murray, D., Mont.: To investigate the feasibility of electric power from wind-driven generators.

S 6 McCarran, D., Nev.: To promote production of synthetic liquid fuels.

HR 1601 Rains, D., Ala.: To intensify experiments in underground gasification of coal, lignite, oil shale, etc.

S 87 Cordon, R., Ore.: To generate more power in the Columbia River basin.

S J Res 16 Ferguson, R., Mich.: To create a Great Lakes Water Level Commission.

S 283 Kilgore, D., W. Va.: To provide for a transcontinental super highway with alternate sections.

H J Res 104 Dondero, R., Mich.: To create a St. Lawrence Seaway Development Corp.

HR 568 Reed, R., N. Y.: To continue through June 30, 1954, the suspension of copper import taxes.

HR 604 Simpson, R., Pa.: To amend section 117 of the Internal Revenue Code re. iron ore royalties.

H Res 13 Bolling, D., Mo.: To create a Select Committee on Problems of the Aging.

H Res 40 Smith, R., Wis.: To investigate U. S. participation in the International Materials Conference.

HR 369 Auchincloss, R., N. J.: To protect rights of the public in labor disputes.

HR 437 Fisher, D., Tex., and HR 639 Wilson, D., Tex.: To put labor unions under the antitrust laws.

HR 392 Celler, D., N. Y.: To establish an Inventions Awards Board in the Department of Defense.

HR 401 Celler, D., N. Y.: To provide for adjustments of royalties for use of inventions for benefit of the U. S.

HR 103 Burdick, R., N. Dak.: To outlaw acceptance of favors from influence peddlers.

H Res 15 Coudert, R., N. Y.: To create a Select Committee to Inquire into Commercial and Proprietary Activities of the Government of the U. S.

HR 125 Engle, D., Calif., and HR 442 Hale, R., Me.: To restore the gold standard and legalize the right of citizens to own and sell gold.

HR 447 Hillings, R., Calif.: To establish a uniform system of bankruptcy throughout the U. S.

H J Res 72 Ray, R., N. Y.: To provide for research into causes, hazards and effects of air pollution, and recovery of critical materials from atmospheric contaminants.

HR 403 Celler, D., N. Y.: To allow temporary free imports of aluminum.

These Concern Metalworking

- Keogh, D., N. Y.: To allow temporary duty-free importation of petroleum products.
- McDonough, R. Calif.: To compensate employers for withholding income taxes on wages of employees.
- Mills, D. Ark.: To establish a Tax Settlement Board.
- Fulton, R., Pa.: To prohibit discrimination in employment because of race.
- 123 Gwinn, R., N. Y.: To amend the Constitution to prohibit the U. S. government from engaging in business with its citizens.
- George, D., Ga.: To provide jury trials for tax recovery claims.
- McCarran, D., Nev.: To permit judicial review of decisions of government contracting officers involving questions of fact under government contracts.
- Lane, D., Mass.: To permit the award of contracts to firms in labor surplus areas at 5 per cent above lowest bid.
- Frazier, D., Tenn.: To illegalize use of the national flag in advertising.
- O'Hara, R., Minn.: To make standard time the measure for all purposes.
- Fine, D., N. Y.: To provide equal pay for women.
- Bartlett, D., Alaska: To empower the Court of Claims to pass on claims for back pay and overtime compensation.
- Hand, R., N. J.: To make espionage and advocacy of overthrow of the government a capital offense at all times.
- Brown, R. O.: To re-establish a Commission on Organization of the Executive Branch of the government.
- Church, R., Ill.: To create a commission to study administration of government activities of the government.
- Budge, R., Idaho: To suspend price and wage controls.
- Simpson, R., Pa.: To encourage prevention of water pollution by allowing amortization on money spent for industrial waste treatment works.
- 98 Machrowicz, D., Mich.: To approve U. S.-Canada St. Lawrence seaway agreement.
- Cole, R., N. Y.: To raise income tax exemptions from \$600 to \$1000.
- Ford, R., Mich.: To permit tax deduction of losses and expenses caused by abnormally high water levels in the Great Lakes.
- 30 Byrd, D., Va.: To give the President the power, by means of a constitutional amendment, to veto individual sections of appropriations measures.
- Simpson, R., Pa.: To treat iron ore royalties at the capital gains rate of 20 per cent instead of considering them, as is done now, as straight income.
- Bender, R., O.: To dissolve the RFC.
- Young, R., N. Dak. and Russell, D. Ga.; HR 1829 Lovre, R., S. Dak.: To amend the Agricultural Act of 1949 to extend for three additional years the requirement that prices for basic agricultural commodities be supported at 90 per cent of parity.
- Gillette, D., Iowa, and other senators: To create a Senate Committee on Natural Resources and Interests.
- Hinshaw, R., Calif.: To provide for federal participation in design development and service testing of jet transport aircraft.
- 874 Hottel, R., O.; HR 1979 Brown, R., O.: To extend to Oct. 1, 1952 the Presidential authority to submit plans for reorganization of executive agencies.
- 589 Wiley, R., Wis., and 16 other senators: To authorize participation by the states in the construction and operation of the St. Lawrence Seaway.
- 106 Ferguson, R., Mich.: To determine whether some federal activities can be performed by states or private industries.
- 595 Young, R., N. Dak., and Eastland, D., Miss.: To increase the federal farm price supports for basic crops from 90 to 95 per cent of parity.

Replacing Money Aid

A new plan to help Latin America is designed to lessen cost of assistance

ACTION on the "trade instead of aid" theory of foreign assistance comes with the forming of new "Industrial Productivity Servicios" in Latin America. Two are in the organization stage—one in Brazil, the other in Chile—with others coming for El Salvador and Colombia.

Goal of these "servicios" is vitalization and expansion of existing industries, cost reduction and increased output through installation of improved automatic and semi-automatic machinery, materials handling equipment, etc. Since they'll be staffed by American engineers and technicians, on invitation of the host countries, the effect should be a boost for American-made industrial equipment.

Point of Fact—Actually the "servicios" are filling an existing need in Latin American countries which want to industrialize further but do not have the know-how to do it. Costly boners in mechanization have shaken the Latins' confidence but they're ready to go ahead on the basis of dependable assistance. They want to raise living standards by producing a much larger variety of manufactured goods and making them available at reduced prices. They have some capital and can borrow more from international banking organizations.

American experts are being recruited for the "servicios" and include specialists to fit the needs of the individual countries. The Chilean team, headed by Richard Goodrich in Santiago, will include specialists in the foundry, sheet metalworking and needle trades, food processing and wood products fields. The Brazilian team, led by D'Alton Myers in Rio de Janeiro, will include a textile engineer, a foundryman, a general metalworking man, an electrical products man, a methods engineering specialist and a materials handling specialist.

Besides the Brazilian and Chilean "servicios," two more are about to be set up, in El Salvador and Colombia. A fifth, for Uruguay, is being discussed.

Enough Steel in Case of War?

The first part of a DPA survey on the subject makes no clear-cut answer. But initial figures indicate the final report will be generally favorable

IS FINISHED steel capacity adequate for full mobilization?

The Defense Production Administration isn't certain it is despite the recent tremendous expansion of facilities.

Optimism—Results are encouraging on the first phase of a three-pronged study to evaluate potential capacity for producing eight critical finished products essential to full mobilization. But until the remaining two parts of the study are completed, adequacy of the expanded capacity to meet possible needs cannot be fully evaluated, it is said.

The eight products covered in the survey (see the table) are: Heavy standard rails; hot-rolled bars, including tube rounds 1½-inches to 9½-inches in diameter; cold-finished bars 1-7/8-inches and over; heavy structurals and piling; strip mill plates, sheared plates, universal plates; and seamless pipe and tubing.

Emphasis—Report on results of the first phase, just issued, shows greatest emphasis in the post-Korea steel expansion has been on basic steelmaking capacity, and on raw materials and transportation facilities.

As of Jan. 1, 1954, the industry will have ingot capacity of 124,098,000 tons, according to the report. That will bring capacity to a level 25 per cent greater than comparable capacity on Jan. 1, 1950, and 38 per cent greater than the highest production rate achieved in World War II.

Basic Potential—Blast furnace capacity on completion of the planned expansion is expected to reach 84,905,000 net tons, or 19 per cent greater than the 71,498,000 tons capacity available on Jan. 1, 1950.

Necessity certificates had been issued for new steel facilities amounting to \$4,661,077,000 as of Oct. 1, 1952. Of this amount, 72.9 per cent was for basic steel plant and raw material expansion. The balance was for facilities necessary to round out the finishing capacity

needed to handle the increased volume of ingots.

Tax Angle—Rapid amortization privileges were granted for only \$3,143,567,000, however, or two-thirds of the total amount covered by the certificates of necessity issued. Of the certificates issued for basic steel and raw material facilities, rapid amortization was granted for 72 per cent of the value, while of the certificates issued for finishing facilities rapid amortization was granted for only 55 per cent of the value.

Biggest Expansion—In appraising implications of the DPA report, note that in the finishing facility category, covering a quarter of all necessity certifications, the largest expenditures fall in the category of sheet, strip and black plate. Certifications in that classification amount to \$714,039,000, or 15.3 per cent of the finishing facility total, of which \$392,759,000 or 12.5 per cent was amortized.

Those larger expenditures for facilities to produce products ordi-

narily considered chiefly of auxiliary-use nature have been the basis for some criticism of the expansion program. But the classification includes those facilities used to reduce strip mill plates. Since that type of facility has had to operate at a higher average rate of utilization than other classes, it is natural that most expansion of finishing capacity occur there.

The steel industry historically has kept its finishing capacity substantially above that for ingots, according to the report. In addition, finishing capacity is characterized by considerable flexibility and convertibility in many products. Consequently, these factors, along with additions to and rounding out of facilities, tend to assure ability of finishing capacity.

Breakdown—This first phase study of steel capacity, started last October, sought to develop statistical data as to the maximum potential output of the eight products as result of the steel expansion program currently nearing completion. The second part of the study will involve a compilation of data on military and other requirements, while the third section will compare and evaluate the data on output potential against requirements.



PRODUCTION POTENTIAL UP ON TIGHT ITEMS

Product (all grades)	Net Shipments 1950 in net tons*	Maximum possible annual production at conclusion of expansion program†
Standard rails, heavy	1,729,000	2,649,000
HR bars including tube rounds, 1½"-9½"	5,845,000	21,538,000
(Tube rounds produced on mills capable of producing tube rounds only—included above)		(4,072,000)
Cold-finished bars 1-7/16" and over	552,000	2,307,000
Heavy structural shapes and piling	4,591,000	9,560,000
(Wide flange beams and bearing piles—included above)	(2,000,000)	(2,645,000)
Plates—strip mill	733,000	6,260,000
Plates—sheared	4,875,000	8,676,000
Plates—universal	964,000	4,460,000
Seamless pipe and tubing	3,310,000	4,939,000

*Exclude shipments to members of the industry for conversion into further finished products or for resale.

†Data are not additive, but are the total tonnage of a product that could be produced under full operations, assuming exclusive use of all available facilities and without regard to the availability of ingots.

Earnings Slump

1952 should be followed by high-production 1953, officials believe

THE SM for at least the first six months of 1953 is the keynote of steel magnates as annual reports to stockholders are made. More than half the companies making such reports up to last week stated that despite a decline in profits during the past year, they expect production to reach high levels at least through the second quarter, with a second decline, if any, of only minor proportions.

The steel strike was the main cause for less profits in 1952 than in 1951, coupled with rising costs which most officials claim were not fully increased prices of their products. The accompanying table, which shows profits for firms reporting a fiscal year approximating calendar year, clearly shows that the bite these elements took.

	1952	1951
S. I.	\$144,285,522	\$184,359,787
Leh.	90,900,771	106,531,253
U.S.	44,274,053	54,291,541
W.	23,755,218	34,398,585
N&T	22,915,822	30,644,201
W.	19,482,000	30,998,000
W.	10,950,780	17,392,959
W.	5,100,000	7,331,000
W.	2,316,791	3,549,567

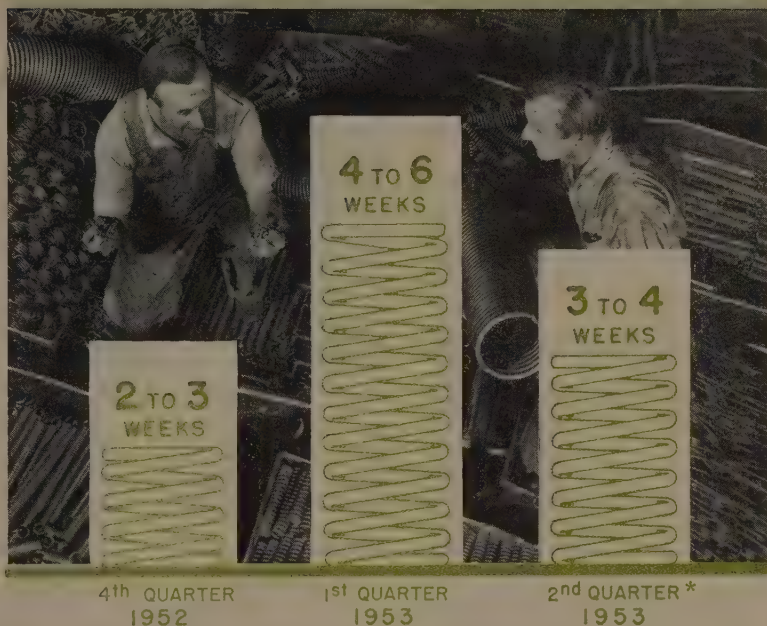
Calendar ended Oct. 25, 1952.

G Factor—The one factor that kept income from falling off further was a record fourth quarter production. For instance, Steel shipped 6,626,668 net tons of steel products last quarter, the greatest tonnage shipped in any quarter of its history.

Another factor in the 1952 profit is the carryback of excess credit to 1951 and a tax reduction for that year. That was offset by the strike last summer.

Quarter Reports—In addition to the reports listed above, several companies listed above, several reports for the fourth quarter. Those firms have earnings differing from calendar year. Kaiser Steel Corp. reported earnings of \$1,957,165, compared with \$3,200,000 for the fourth quarter, 1951, of \$3,200,000; Carpenter Steel Co. reported \$866,170 compared with \$1,000,000; Colorado Fuel & Iron reported \$2,026,246 compared with \$2,925,307.

Average Deliveries of Precision Mechanical Springs



*Estimated by STEEL

Spring Deliveries Bounce Up

SPRING MAKERS' usual ability to supply an elastic demand is currently being stretched to the limit. That's why you may be having trouble getting faster delivery.

It's not unusual for a customer to ask spring makers to double or halve his order overnight. And the spring manufacturers are flexible enough to accommodate a great deal of this fast change.

Three-way Stretch — But the automotive trade—number one customer of the jobbing precision mechanical spring maker—farm implement producers and appliance people have all jumped orders for the first half, 1953. Automakers hope to build at least 2.8 million cars by mid-year (see *Mirrors of Motordom*, Jan. 5, p. 136). Appliance manufacturers are shooting for a record dollar sales and near-record unit sales year in 1953 (see *Appliances*, Dec. 22, 1952, p. 38). With dollar sales expected to shrink in 1953, farm machinery makers are anxious to make haying machines while the sun shines and are pressing for quick spring deliveries (see *Farm Machinery*, Dec. 8, 1952, p. 68).

Because of that glut of orders,

the spring makers are having difficulty getting the steel they need when they need it. High carbon strip is one item they want more of; flat stainless is getting tighter, with mills quoting 90 days' delivery in many cases; Inconel and MB ground wire are tight. Alloy steel is adequate to meet requirements; music wire is, too, as is bronze.

Not Forever — While materials poses the biggest problem for spring makers, besides trying to pacify customers whom they can't completely satisfy at the moment, spring manufacturers don't believe the current shortage will last beyond mid-year. Some indicate new tooling for spring work after May is falling off. So delivery dates which jumped from an average of 2 to 3 weeks in late December to 4 to 6 weeks now should start slipping back again in the second quarter (see the chart).

Last year, precision mechanical spring makers did about \$140 million in sales, down some 10 per cent from 1951, but well above 1950's \$100 million. Sales this year are expected to about equal the 1952 figure. Precision mechanical springs—used in a myriad of

equipment from delicate instruments to heavy machinery—make up the largest segment of the complicated spring industry. Some 85 companies out of 150 do the lion's share, 90 per cent, of the dollar volume. Other firms of the industry can be roughly classed as leaf, railroad, upholstery and furniture spring producers. There's a distinct difference between the short-run specialty house and the production-run house. Each category has some firms in each type but gener-

ally the production jobs are for heavy consuming industries like automotive or appliance.

The Limit—Prices are another consideration which is limiting the bounce back of spring makers to meet the currently inflated demand. Price control has meant absorption of increased labor costs and spring manufacturers are finding that, when they can't get steel from the mills, they still can't afford to go to warehouses for all their steel needs.

Guide to Automation: Will It Pay Off?

"PROGRESSIVE MECHANIZATION," not a headlong leap into "automatic factories," is the surest, safest way for manufacturers to meet the probable tremendous increase of the public's appetite over the next ten years. That's the judgment of Arthur F. Vinson, assistant manager of manufacturing, General Electric Co., who was major speaker at the ninth annual meeting of the Cutting Tool Manufacturers Association in Detroit last Tuesday.

The increase in productivity in the period 1940-1950, Mr. Vinson said, was 21 per cent. "We believe that rate must be more than doubled and that it can be doubled by accelerating our mechanization rate."

Word of Caution—But, he advised, progress should be made slowly. The two fastest and surest ways for a company to go broke are to continue making by hand a product which a competitor makes by machine and to have too much idle machine capacity. The automatic factory, Mr. Wilson believes, "presents unusual opportunities to make or lose much money."

At GE, the approach is to raise the level of mechanization, in some cases stepping up only from use of hand tools to a simple machine, or a few steps higher to automatic controls. And each study to determine the degree of mechanization is guided by the "pay off;" a new method either pays its way or it is discarded in favor of another method that will.

Slower at that Rate—Under this system automatic factories may be a long way off. In General Elec-

tric, for example, no product it makes is automatically packaged. In fact, at one midwestern GE plant more people are required to package the product than to manufacture it.

Some of the problems standing in the path of complete mechanization are the impossibility of complete integration of operations—self-contained manufacturing without need of subcontractors; specific machine tool and tooling problems such as arise when speeds of various pieces of equipment are not balanced and machine tools too fast to be fitted into an integrated line stand idle much of the time; need for elimination or automation of "batch-type" operations—plating, cleaning, annealing, etc., and planning and scheduling for automatic operations.

A way to translate sales forecasts and other office calculations into information for the plant may be the largest problem of the lot. Much more data needs to be developed on machinability of commonly used materials, and finally the problem of employee relations needs to be solved before complete mechanization can be achieved.



ROBERT J. RYAN
... president of fabricators group

Fabricators Appraise 1953

Although prospects for heavy steel construction in 1953 appear to be at least as good as 1952 was, they hinge on the availability of plates and structurals. This was the sentiment of members of the Steel Plate Fabricators Association at their 20th annual meeting in Chicago, Jan. 22-24.

Orders on the books appear to justify the optimism, although caution was expressed that the law of supply and demand may be felt before long.

Business now in hand, fabricators explain, is firm and is sure to remain on the books. Removal of price controls is not likely to cause any stir, one member said.

Robert J. Ryan, president, Nooter Corp., St. Louis, was elevated from vice president to president of the association, to succeed E. O'Leary.

SELECTED DEFENSE CONTRACTS IN EXCESS OF \$100,000

PRODUCT	CONTRACTOR
Tank, Automotive Spare Parts	Bendix Products Division, Bendix Aviation Corp., Sou. Bend, Ind.
Shells, 120 mm.	Cribben & Sexton Co., Chicago
Diesel Engine Parts	General Motors Corp., Cleveland Diesel Engine Div'n
Boring, Drilling Machines	Giebel Inc., New York
Tank & Combat Vehicle Parts	Monroe Auto Equipment Co., Monroe, Mich.
Shells, 57 mm.	Hackethorn Mfg. & Supply Co., Littleton, Colo.
Parts for Chemical Shells, 90 mm.	Budd Co., Detroit
Rocket Assemblies	Kaywood Corp., Benton Harbor, Mich.
Projectile, Practice, 30 mm.	Harvey Machine Co., Torrance, Calif.
Telescope, with Equipment	Graflex Inc., Rochester, N. Y.
Motor Generator	Continental Electric Co. Inc., Newark, N. J.
Diesel Generator Sets	R. H. Sheppard Co. Inc., Hanover, Pa.
Bombs, Practice, Miniature	Basic Foundry Co., Huntington, W. Va.
Radio Sets	Hallcrafters Co., Chicago

CKLIST ON CONTROLS

Materials Orders

ALUMINUM—Amendment 1 of NPA M-5, issued and effective Jan. 13, relieves secondary smelters and independent fabricators of aluminum of requirements of filing Form NPAF after Jan. 15, 1953. After that primary producers of aluminum file the form with NPA.

NPA Regulations

INCANDESCENT LIGHT BULBS—Amendment 3 of NPA Regulation 2, effective Jan. 23, adds incandescent and incandescent electric lamp bulbs to the commodities for which defense (DO) ratings may not be offered in order to obtain delivery. Orders for specified defense and machine tool program identification are exempted from this action.

Price Regulations

BURNED MAGNESITE—Supplementary Regulation 132 of General Ceiling Price Regulation, issued and effective Jan. 22, 1953, authorizes an increase of 9 per cent in current ceiling prices for producers of dead burned magnesite.

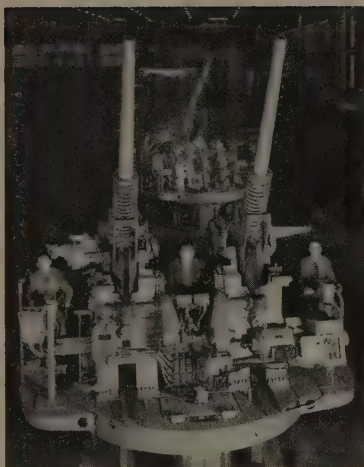
STEEL THROUGH—Amendment 7 of General Overriding Regulation 35, issued Jan. 26, 1953, and effective Jan. 26, exempts the provisions of Section 6 (a) relative to purchases from mills for all purchases of steel, iron, and aluminum from the producer or any reseller other than a consumer.

ALUMINUM—Amendment 1 of Supplementary Regulation 113 of General Ceiling Price Regulation and Amendment 7 of General Overriding Regulation 35, issued and effective Jan. 22, 1953, raises the ceiling price increases of one cent a pound for producers of primary aluminum pig, alloy pig and primary aluminum ingot and of 4 per cent for producers of other primary aluminum mill products.

COMMERCIAL VEHICLES—Supplementary Regulation 11 of CPR 30, issued Jan. 3, 1953, establishes a method for manufacturers of automotive motor coaches, truck trailers, motor coaches, ambulances, hearses, cars, motorcycles and motor vehicles may determine their ceiling price for these vehicles and for any special or optional equipment incorporated therein. Amendment will be effective Feb. 23 or such earlier date between Jan. 23 and Feb. 23 as the manufacturer may select.

STEEL CASTINGS—Supplementary Regulation 4 of CPR 60, issued and effective Jan. 23, 1953, authorizes a 3.5 per cent increase in ceiling prices for castings of high alloy steel castings.

IRON, STEEL, HOLLOWWARE—Amendment of Revision 1 of General Overriding Regulation 5, issued and effective



Electronic Ack-Ack

Electronically controlled mounts for antiaircraft guns are again being made by the Firestone Tire & Rubber Co., Akron, O., which manufactured both 40mm and 90mm gun mounts during World War II. The three-inch, twin-fifty gun mounts above are being produced on a Navy contract

Jan. 23, 1953, exempts from ceiling prices some higher-priced watches and clocks, practically all holloware and other miscellaneous luxury and gift consumer items.

AUTOMOBILE MANUFACTURERS—Amendment 6 of Revision 1 of CPR 1, issued Jan. 28, 1953, and effective Jan. 31, sets forth several changes in the methods employed by manufacturers of passenger automobiles in determining ceiling prices and computing adjustments to cover the extra costs involved in using conversion steel.

GOVERNMENT PROPERTY—Revision 1 of Supplementary Regulation 72 of General Ceiling Price Regulation, issued and effective Jan. 28, 1953, suspends from price controls five additional types of sales of certain United States government property.

IRON, STEEL RESELLERS—Interpretation 2 of CPR 98, effective Jan. 28, 1953, states that a seller of iron and steel products under certain circumstances will be classified as a warehouse reseller when he rents warehouse space and has a lessor perform certain warehousing services.

RAIL, TRACK ACCESSORIES—CPR 186, issued Jan. 28, 1953, and effective Feb. 16, provides a flat ceiling price of \$64 a net ton f.o.b. shipping point for relaying rail and used track accessories when sold by the railroad and \$69 a net ton f.o.b. shipping point when sold by dealers.

CAPEHART ADJUSTMENTS—Amendment 2 of General Overriding Regulation 42, effective Feb. 4, 1953, permits manufacturers to include in their ceiling price adjustments under the Capehart amendment those costs authorized under General Overriding Regulation 10, covering manufacturers in a

loss position, and those under General Overriding Regulation 29, covering essential producers of essential commodities. Outbound transportation costs may not be reflected in such adjustments unless authorized specifically for the particular industry.

COAL MINING EQUIPMENT—Amendment 3 of General Overriding Regulation 42, effective Feb. 4, 1953, authorizes an industry earnings standard increase of 7 per cent in current ceiling prices for manufacturers of electrically operated underground coal mining machinery and equipment, including accessories and repair parts.

BOILERS, RADIATORS—Amendment 4 of General Overriding Regulation 42, effective Feb. 4, 1953, authorizes an increase of 5 per cent in ceiling prices for manufacturers of cast iron boilers and radiators.

Priorities Assistance Lags

Some 1695 oil and gas operators received priorities assistance for purchase of 309,372 tons of casing and tubing in the second quarter of 1953, Petroleum Administration for Defense reports.

The tonnage is less than a third of the 1,086,724 tons requested and is almost 150,000 tons below actual requirements on the basis of PAD calculations.

Inventory Center Moves

National Production Authority's "machine tool inventory center" is transferring its Washington headquarters from the Old Post-office building to the New GAO building today (Feb. 2). The center, formally known as the Production Equipment Central Inventory Group (PECIG), will be placed in NPA's Metalworking Equipment Division.

Summarizing PECIG's work to date, directors say the center has inventoried more than 34,000 tools since May 12, 1952.

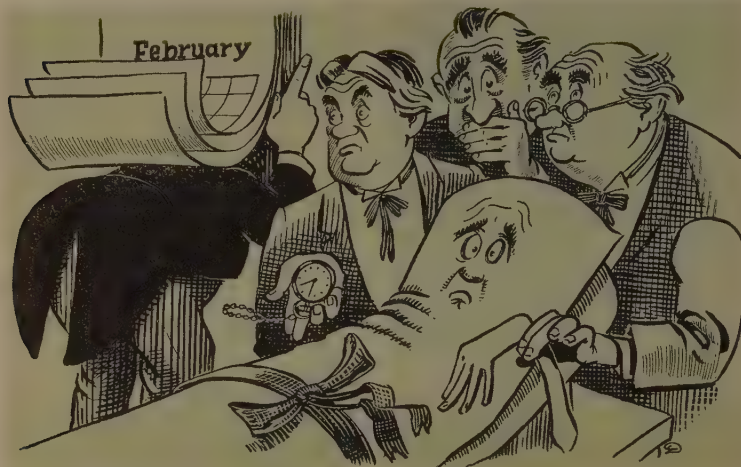
Plan New Company and Plant

Apex Smelting Co., Chicago, announces the newly formed National Metallurgical Corp. will build and operate its pilot plant at Springfield, Oreg., for production of aluminum-silicon metal from clays.

Joining with Apex, The American Smelting & Refining Co. of New York has acquired a half interest in the new corporation. Officials believe the plant will be in production by June 1 this year.

Windows of Washington

By E. C. KREUTZBERG Washington Editor



CONGRESSMEN PONDER DEFENSE PRODUCTION ACT

... will controls expire before Apr. 30?

Congress prepares to decide whether to drop control power under the Defense Production Act. Congressmen await Eisenhower's recommendations

FIRST PLACE on agendas of congressional Banking and Currency Committees is consideration of the Defense Production Act. Expiration dates for this act are Apr. 30 for wage, price and rent controls, and June 30 for the other titles. No activities will be scheduled until the committees have studied recommendations of President Eisenhower. The immediate question is whether to terminate or limit control power.

Agree With Industry — Several leading congressmen have swung over to a widely held industry view that installation of government-owned equipment in privately-owned and operated plants, as permitted under the Defense Production Act, may harm free enterprise. The government might enter manufacturing industries as it has embarked into electrical generating and other businesses.

Arranging for government ownership of these facilities without shackling industry will not be done easily. First, it will be difficult to avoid government ownership as many plants still to be

built as part of the mobilization base will have no peacetime economic warrant. Second, many competent companies do not have the funds to build and equip such plants, even under favorable government contracts.

Military authorities are determining mobilization base programs which the country will need for military purposes in a "bare-bones" economy. They estimate that by March they should be ready to report to Congress on existing deficiencies. The Truman budget contains a request for \$500 million for use in fiscal 1954 toward filling these deficiencies.

Show Need for Security...

Contractors, the Munitions Board points out in its latest Security Letter, must shoulder the blame when classified information about their defense work leaks out through their plant personnel. They are responsible for indoctrinating their employees on the security aspects of their work.

Reflecting the increased em-

phasis on security, the Department of Defense will release no aerial photographs of military installations and other possible target areas unless approved by the Security Review Branch, Office of Public Information.

In Congress, some tough legislation is in prospect. The House Un-American Activities Committee recommends that it should be a crime for unauthorized persons to transmit classified government documents in interstate commerce. The present law only cracks down upon showing intent to use classified information against the national interest.

Slow Price Adjustment...

"To illustrate delays which small firms encounter in their dealings with OPS," reports the House Small Business Committee, "approximately two months have been allowed to elapse in handling an application for price increases for a firm which clearly indicated its position due to price controls."

"The hardship position of the firm in question has increased materially as a result of this delay. This is contrary to an inter-agency directive that all applications for price adjustment should be acted upon within 30 days."

Friend or Foe?...

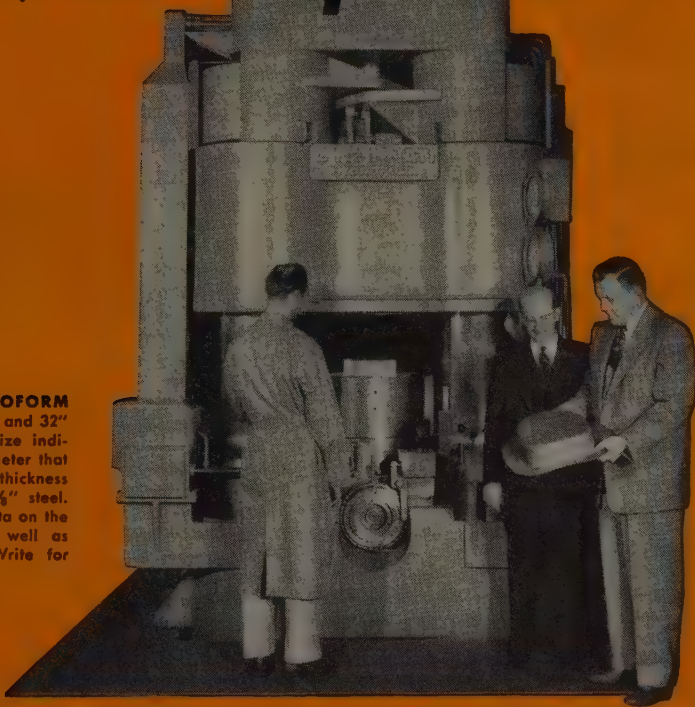
The American Federation of Labor's League for Political Education says the labor vote in 1952 "prevented a reactionary sweep in Congress" and cut down the legislative support of union programs.

The report admits a serious loss in congressional support. It indicates that in the present House of Representatives 160 members are friendly to organized labor, 239 unfriendly and 36 doubtful. In the last House, 181 members were friendly, 222 unfriendly and 3 undetermined.

In the Senate, 38 members are said to be friendly, 57 unfriendly and one doubtful. In the Truman administration last year 40 senators were friendly and 5 unfriendly.

Industry's Newest Fast Cutting Method: Hydroforming

CINCINNATI 26" HYDROFORM
Built in 12", 19", 23" and 32"
standard sizes. Machine size indi-
cates maximum blank diameter that
can be formed. Material thickness
range from foils to $\frac{3}{8}$ " steel.
Circular M-1759-1 gives data on the
hydroforming process as well as
technical specifications. Write for
your copy.



Hydroforming has given industry an improved, *simple*
deep drawing process. Parts can be drawn of
any intricate shape—having improved mechanical
and physical values—in far fewer operations than
conventional practice allows.

Costs run as low as 10% of conventional die set
costs, making short-run production exceptionally eco-
nomical. Trial parts are quickly produced. Tools can
be readily modified to suit changes in part design. Dif-
ferent gauges and types of materials can be tried, drawn
on the same set of tools.

Hydroform tooling consists of the simplest elements of
conventional tooling—a male punch and one draw ring.
A built-in universal die member takes the place of the

female die and the other parts of conventional tooling.
Sheet materials, held between the punch and the uni-
versal die, are formed to the shape of the punch by
controlled hydraulic pressure.

Investigate Hydroforming for your production. It will
change your thinking on deep drawing and forming.
The Cincinnati Milling Machine Company representa-
tive in your area will gladly give you detailed informa-
tion. In addition, at the "Mill" in Cincinnati, a Hydro-
form laboratory is maintained where runs of sample
parts are produced and where this revolutionary deep
drawing principle can be demonstrated most effectively.
Interested manufacturers are invited to inspect these
facilities.

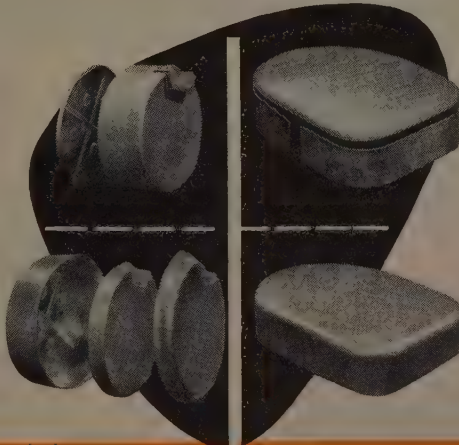
HERE'S WHAT HAPPENS WHEN HYDROFORMING ENTERS THE PRODUCTION PICTURE

PHOTOGRAPHIC INSTRUMENT CASE
0.040" Aluminum
FORMER METHOD Deep Drawn and
Fabricated
12 Operations Total

Photo shows, in sequence form, the opera-
tions formerly required to produce this part.
The shallow cover was drawn in 1 opera-
tion. The body required 2 draws, to sharpen
the wide radius. The body was then
drawn to receive a plug receptacle, which
was fabricated and welded in place.

HYDROFORM METHOD Deep Drawn
7 Operations Total

By designing the part to take advan-
tage of Hydroforming capabilities, the part
was previously the cover became the
produced complete with locating
in 1 forming operation on a 12"
hydroform machine. The cover, with plug
receptacle as an integral part, was formed
in 2 operations.



GEAR CASE COVER, 16 ga. Steel
FORMER METHOD Fabricated

8 Operations Total

Previously produced, as photographed, in 2
sections, formed on a press brake. The sec-
tions were welded, ground and polished to
remove excess weld material and re-shaped
to fit the area to be covered.

HYDROFORM METHOD Deep Drawn
3 Operations Total

The part is now Hydroformed complete in
1 draw, then trimmed. The photo at top of
page shows the part being drawn on the
26" Hydroform. The saving in fabrication
time alone paid for the cost of tools used
to Hydroform this part, although less than
300 of these covers are required per year.
The Hydroformed covers are held to close
tolerance, eliminating a fitting problem
that existed when these parts were fabri-
cated.

CINCINNATI

Hydroform

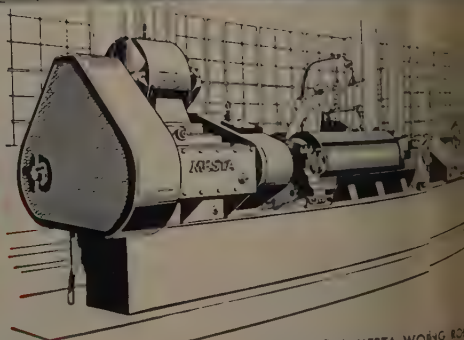
THE CINCINNATI MILLING MACHINE CO.

MESTA

HIGH-SPEED COLD MILLS



MESTA 42 FOUR-HIGH, TWIN STAND HIGH SPEED SKIN PASS MILL
INSTALLED IN A LARGE EASTERN STEEL PLANT



FINISHING A MESTA WORK ROLL
IN A MESTA HEAVY DUTY ROLL GRINDER

Designers and Builders of Complete Steel Plants

MESTA MACHINE COMPANY

PITTSBURGH, PENNSYLVANIA

Reading Time: You Can Cut It Down

Dig yourself out from under that mountainous pile of mail, reports and magazines on your desk by teaching yourself to read faster. You can save hours of time

By HAL JOHNSON

Director, Reading Improvement Laboratory
Case Institute of Technology

MANY pounds of mail snow under every day? How many do you wade through each day? How many business magazines cross your desk in the course of a year?

These days of increasing competition of industry and government for aid economic and technological changes, the rising volume of material is required to keep up with developments. But even you can cut down on the time you devote to business reading.

Mystery—You can do that teaching yourself how to read. "I can read," said one executive when the problem was put to him. "I've known how since the first grade."

That's the trouble. After the first grade most formal reading instruction ceases. The average adult is equipped with the bare rudiments of turning symbols into words and ushered forth into a reading world to fend for himself. He continues plodding way while the material becomes more difficult and larger in quantity.

Reason Why—Little wonder that the daily newspaper is slanted to the sixth-grade perusing level. Little wonder that you count out the hours spent in business reading.

Cut down on reading time, and you can acquire a new set of reading skills. There are ways to do it. The accompanying list of seven suggestions can get you started in the right direction. They are suggestions which have been proved in actual practice.

Major of Practice—Studies indicate that the average adult reads about 250 words a minute. Research also proves that you can post your reading speed from 50 to 100 per cent without loss of comprehension. With concerted effort, you should be reading average

material (fiction, magazine articles) at about 500 or 600 words a minute within a matter of weeks. Keep a record of your gains, and make a point to test yourself three or four times a week.

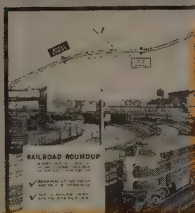
There are 610 words of text on this page, including the boxed portion.



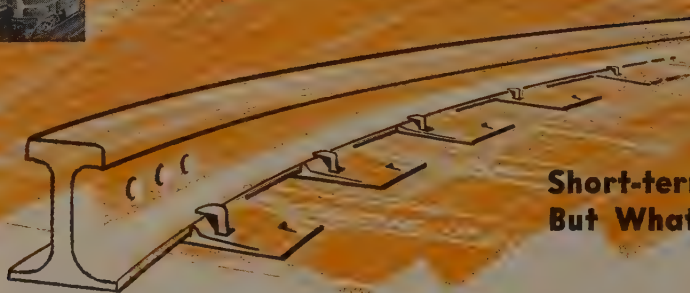
tion. How fast did you read them? A good reader can do it in 60-75 seconds.

How To Read Faster

1. Find out how rapidly you read by selecting from a magazine an article of interest. Read with the intent of comprehending for exactly three minutes and then determine your rate in words per minute.
2. In your reading, force yourself to move ahead. Don't go back over material that seems hazy, but try to clarify meanings as you progress down the page. The more regression, the slower the reading.
3. Before actually reading, survey the material. Anticipating what the author is going to say makes for increased speed. In reading a detective story you learn to solve the crime before the author does.
4. Form the habit of grouping words into thought units. Take the sentence, "The boss wants this finished by five o'clock." Break it into thought units like this: "Boss—wants this finished—by five." Words have more meaning when grouped in thought units.
5. Don't read every word. The efficient reader automatically supplies words such as *a*, *and* and *the*. It is more important to concentrate on ideas. Omitting excess baggage in a sentence does not alter its meaning and increases reading speed.
6. Be aware of the pauses the eyes make in their forward movement during which they are able to focus on the print. The more pauses, the more inefficient the reader. The eyes should move in a definite rhythm, pausing about the same number of times each line, and about the same length of time each pause. There should be few regressions.
7. Make periodic time checks of your reading speed. And practice, practice, practice. You will find that no matter how fast a reader you are now, you can still improve.



RAILROAD PERSPECTIVE



**Short-term Prospects Are Good,
But What About the Long Pull?**

THE NATION'S railroads expect to spend about \$1.4 billion on capital equipment in 1953, above the \$1374 million in outlays for 1952, but below the record \$1,413,971,000 spent in 1951.

Plans which railroads of the United States had for increasing volume of traffic and for expanding and improving of facilities in 1952 got side-tracked. The schedules got crossed up by the long steel strike which caused a terrific loss in car loadings, consequent shrinkage in net earnings, and at the same time created such a serious steel shortage that construction programs had to be drastically curtailed.

Relatively Good—But in spite of the fact the timetable got stalled, the carriers emerged in reasonably good condition—financially in better position than a year ago. Thus they enter 1953 with a fair degree of optimism. For the first six months, at least, the light is green and there's growing belief it may remain green through the year.

Revenue freight car loadings in 1952 totaled 37,983,428, a decline of 2,515,754, or 6.2 per cent, from the 40,499,182 in 1951. About half of this decline is directly attributable to the steel strike. Loadings in 1950 were 38,902,641, and the all-time high stands at 44,502,000 in 1947.

Decline in Freight—Class I railroads performed an estimated 612,-

000 million ton-miles of freight service in 1952, which, compared with the 646,607 ton-miles of 1951, was a loss of between 5 and 6 per cent.

Passenger traffic for last year is estimated at about 34.2 billion passenger-miles, a small decline from the 34.6 billion handled in 1951.

A Little Better—Despite the fall in traffic, the railroads ended 1952 with a slight improvement in their financial condition, due to the 6.8 per cent increase in freight rates authorized by the Interstate Commerce Commission last spring.

Operating revenue of Class I railroads in 1952 approximated \$10.6 billion, a new all-time high, and an increase of about 2 per cent over 1951, when the figure was \$10,391 million. Operating expense of nearly \$8.1 billion also struck a new high, increasing about 0.33 per cent over the \$8041 million of the preceding year.

Terrific Taxes — After paying record peace-time taxes of approximately \$1.3 billion and equipment and joint facilities rents, Class I railroads had a net operating income in 1952 equivalent to a rate of return on net property investment at end of year of about 4 per cent, one of the lowest rates for any industry. That compared with a return of 3.70 per cent earned in 1951. After interest and other charges, net income for the year

approximated \$775 million, compared with \$693 million in 1951 and \$783 million in 1950.

Present indications are that rail traffic volume may continue at 1952 levels during the first six months of 1953, with a possibility of some decline during second half.

Freight Car Goal—The freight car fleet at present is about 1,600,000 units. The carriers want a fleet of 1,850,000 Class I cars by the beginning of 1955. That number should be sufficient to take care of military and civilian traffic needs during full mobilization.

Late last November, the railroads reaffirmed the pledge made following outbreak of the war in Korea in 1950 to increase freight car ownership of Class I roads to the 1,850,000 total. At the beginning of 1953, net increase still needed to reach this goal was more than 90,000 cars. As it will be necessary to replace about 11,000 cars to be retired during this two-year period, the program will require construction of some 27,000 new cars. With an adequate supply of steel, a production rate of 10,000 cars per month could be reached by the fall of 1953, and if maintained, the gain of 90,000 cars can be achieved by end of 1954.

Signs of Steel Strike — Steel shortages during 1952, accentuated by the long steel strike, retarded the program to increase freight car



to meet the 1955 goal of 1,850,000 freight cars, builders are striving for 10,000 new cars a month

Economy of operation continues to push construction of diesel locomotives far beyond other types

While the railroads have typically requested steel allocations for at least 10,000 new cars a month, production reached a low of 3,700 last September.

In 1951, 65,000 new cars were in service in 1952, but because of retirement of old cars at a rate of about 5,000 per month, the gain was slight. Deliveries for 1951, 1952, and 1953, were 95,943, 85,000, and 123,000, respectively. On Jan. 1, a year ago.

Production goal for second quarter this year should reach 9,000 a month. If that rate can be maintained, the rate of 10,000 a month by fourth quarter should be possible. It is estimated that orders for about 240,000 new cars will materialize in the next 24 months.

Locomotive Handicap — Locomotives in service also fell in 1952, due largely to the shortage. Despite this, an estimated 2,415 locomotives were put in service last year, as compared with 2,158 in 1951.

To meet economies in operation, railroads again extended use of diesel-electric locomotive. Majority of all new locomotives placed in service were of this type with increasing popularity of new steam locomotives.

Limited orders for new gas turbine locomotives were

placed during the year after several units had completed successful testing over an extended period.

The Diesel Leads — Locomotives installed in 1952 include: 2,389 diesel, 19 steam, 1 electric and 6 gas turbine for a 2,415 total. The breakdown for all of 1951 was 2,537 diesel, 18 steam and 3 electric, for a total of 2,558.

Class I railroads had 832 new locomotives on order on Dec. 1, 1952, these including 788 diesel, 19 gas turbine, 15 steam and 10 electric. On order at the start of 1952 were 1,709 diesel, 19 steam, 1 electric and gas turbine-electric, for a total of 1,739.

Outlook Good — Prospects are looking up for locomotive building this year. Enough materials are being allocated for manufacturers to produce 883 units in the second quarter. Of this number, 800 will be for U. S. railroad use, the balance for industrial, military and export purposes. Supremacy of the diesel as a railroad prime mover is well entrenched. Evidence is the widespread conversion by railroads of their steam shops for diesel servicing and repairs.

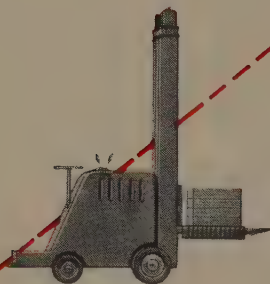
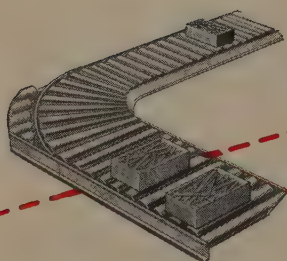
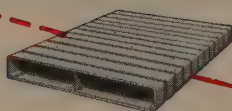
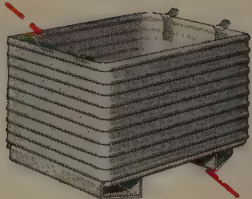
The future, however, could see diesel supremacy threatened by the gas turbine development. That conclusion is based on two years and 50,000 miles of experience with one experimental unit. Gas turbines can utilize either oil or coal. Al-

though they have a bigger fuel appetite than the diesel, they thrive on cheaper grade.

Not Enough Rails — Insufficiency of steel rail is another serious problem faced by the railroads. Allocations in second and third quarters last year were 363,000 tons and 387,000 tons, respectively, but, of course, the carriers didn't get deliveries on their full quotas because of the steel strike. Prospects are that the roads will fare better starting next quarter. The industry maintains that 400,000 tons a quarter is the minimum need to replace track worn out by heavier traffic and steadily increasing speed of operation.

Although the railroads will buy heavily in 1953, what about future years? Some officials in the industry think railroads will be in dire financial straits if the economy operates at less than full tilt for a year or more. Then, capital buying would drop drastically. Rail profits are ominously low and investment capital scarce. Trucks, inland waterways and airplanes continue their inroads into rail business. So alarmed are some that a group of eastern railroad presidents has organized to seek less stringent ICC regulation of their industry, less subsidization of rival forms of transportation and a revitalization of railroad management.

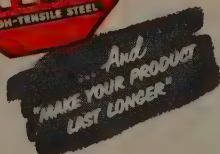
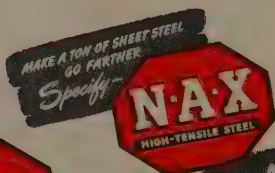
Handle materials better,
more cheaply,
with equipment made of



Minimum product weight and long product service are just two important reasons why N-A-X HIGH-TENSILE steel is ideally suited for tote boxes, pallets, conveyors, lift trucks, and other equipment used for transporting materials.

Because N-A-X HIGH-TENSILE steel has exceptional strength and durability, thinner sections can be used, yet it resists abrasion, impact, fatigue, and corrosion. N-A-X HIGH-TENSILE steel gives your equipment longer life and reduces deadweight to the minimum; you can carry a greater net load of material with no increase in the gross load weight. And N-A-X HIGH-TENSILE steel has exceptional welding and fabricating qualities — important advantages where custom-made materials-handling equipment is required.

If you are interested in better, more economical materials-handling, why not investigate N-A-X HIGH-TENSILE steel now?



GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division • Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION



Mirrors of Motordom

General Motors runs a super test of 13 of its own cars and 7 others to see how they compare. The action could herald new competitive efforts by GM

DETROIT

ES of the General Motors reports which would-be purchasers and other auto-re would undoubtedly give a penny to see.

are the test results ob- from day-and-night driving rs—13 GM and 17 made by er companies—over a 13-week at General Motors' proving ur. Each car rolled up 25,000 es but because of the severity th test this mileage is equiv- perhaps 100,000 miles of re conventional operation. At conclusion of the test, each car in down to the last nut and see where wear had oc- and how severe and exten- had been.

General Rule—It is no secret ry car maker tests its own competitors' cars extensive- General Motors, however, bes- at its tests are the most ative of those conducted. Im- car impartiality was main- nee throughout, even to the en of switching drivers so that r was given as nearly as the same treatment.

impartiality and the exacti- h which the tests were car- are what would make the e of great value to the public. pliers would also be in- in finding out how their s had performed, not to nt how worthwhile these orts would be to other car

It is just wishful think- wever, to hope that this tion might be made gen- available. Its benefits to ic will not be so direct as everyone know how all of cars stack up in this kind but the benefits are none- real. If in analyzing the General Motors officials ul that their cars have not ed up in any significant ars, you can be sure that

Auto, Truck Output

U. S. and Canada

	1952	1951
January	409,406	645,688
February	467,691	658,918
March	517,207	792,550
April	576,505	680,281
May	546,673	695,898
June	560,947	653,682
July	246,461	522,858
August	293,722	571,442
September	592,253	505,758
October	645,862	558,971
November	550,885	480,323
December	568,577*	402,729
Total	5,976,189	7,179,161
Week Ended	1953	1952
Jan. 3	106,102	53,601
Jan. 10	139,620	92,741
Jan. 17	148,718	98,669
Jan. 24	149,550	94,722
Jan. 31	151,000*	102,402

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. *Preliminary.

work will be done to improve that situation. And the same reasoning is applied by every other company which realizes it has to compete successfully to survive.

How It Was Done—So while the results of this testing are not going to be told, it is nevertheless interesting to know something about the conduct of the tests. It was run last summer at GM's proving grounds near Milford, Mich., about 40 miles northwest of Detroit. The test required, directly and indirectly, about 400 people at the proving ground. The two largest groups were the 117 drivers and the 81 ground maintenance men. Twenty-one mechanics were required to service the cars. Accurate records were kept on each car, noting part failures, cost of replacement parts and labor (charge being made on the basis of labor and materials costs at service shops in the Detroit area), quantities of gas and oil used, number of tires worn out (average life in these severe tests was 8000 miles), required adjust-

ments, and other items. Maintenance of all cars was as prescribed by the manufacturers.

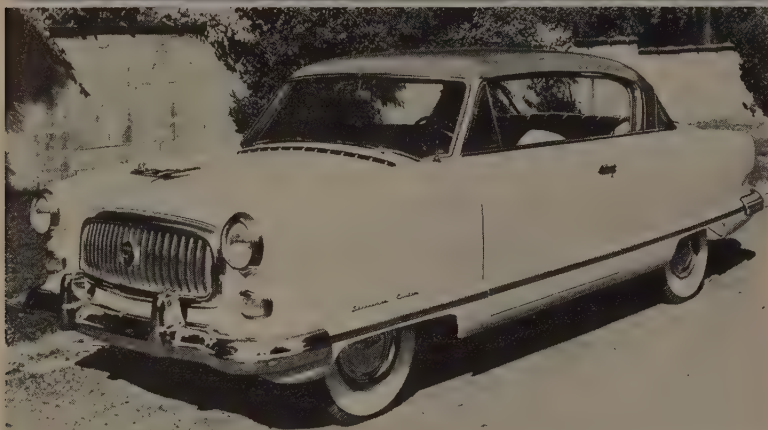
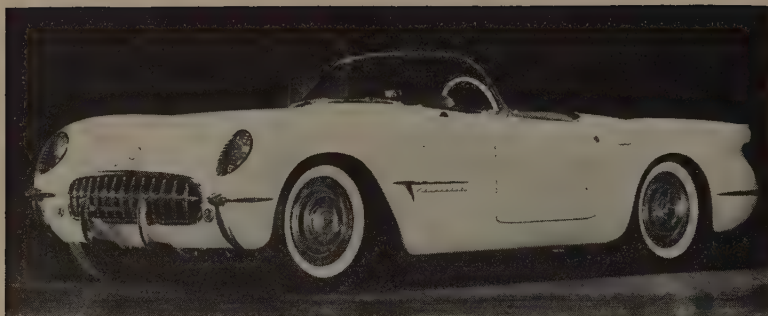
For an idea of the driving conditions encountered, here is a typical schedule: "Run one lap of the speed loop (3.8 miles long) at 55 miles per hour. Make a fast brake stop without skidding tires. Repeat lap and fast stop. Accelerate at full throttle, traffic permitting, and run a lap at five miles per hour below maximum speed, with speed limited to 80 miles per hour on turns. Stop. Turn off engine. Check for vapor lock or other bad conditions. Approach 11 per cent hill at 10 miles per hour in third gear. Apply full throttle at first marker. Proceed on gravel hill route at not over 45 miles per hour. Proceed on Belgian block road (paved with granite blocks set unevenly in concrete) at 35 miles per hour. Stop and proceed 50 feet in reverse."

Checked—When the last tortuous mile had been covered the cars were completely stripped, their parts tagged to show where replacements had been made, where replacement was indicated, or the extent of wear which was evident. Allowed to view this display were only the top engineering executives of GM's Car, Body, Parts and Research divisions.

Another Test, but More Public

Another kind of test whose results are exposed to the widest kind of circulation was described at the recent meeting of the Society of Automotive Engineers in Detroit. This is annual Mobilgas economy run. A common gripe of ordinary drivers when they talk about this event is that their cars fail by a wide margin to give the kind of gasoline economy which not only the winners but all entrants to this contest get.

In 1952's run the 25 entering cars covered the 1415 miles of the course over tough terrain at an average speed of 40.44 miles per hour and obtained an average of 22.01 miles per gallon of gas. This mpg might be considered par,



Nash and Chevrolet Put Their Best Teeth Forward

The open-mouthed grinning grille is with us more than ever. Nash continues to show a full set of teeth in its 1953 Statesman Country Club custom hardtop convertible, introduced in January, while Chevrolet smiles at the future with an experimental sports car, the Corvette, unveiled at the General Motors Motorama in New York last month. The Corvette is not expected to show its face on the streets for six months to a year, but the Nash Statesman is out now

something for the average driver to shoot for since he knows it can be done.

The way the contest was conducted in 1952 answered a lot of criticisms which had been voiced by automotive companies over the previous two runs. In the 1950 run, tune-up of the cars appeared to have been a deciding factor, and, according to W. S. Mount of Socony-Vacuum who prepared the SAE paper, some of the entrants had "the most carefully tuned stock cars ever put on the road." Rules therefore were tightened for the 1951 race to make car conditions more nearly typical. The drivers for that year's contest answered by improving their driving techniques, some by running the course 10 to 12 times previous to the test and keeping a plot to guide them for utmost economy.

The sponsoring American Automobile Association changed its rules for the 1952 run to get win-

ning results which the public might find more believable. It kept the course route secret until about a week before the event so that drivers would not have an opportunity to memorize it. AAA eliminated many of the optional equipment choices so that the cars were strictly stock, and it picked a course which contained city driving, difficult mountain and snow conditions, and reasonable fast level roads.

Here are some of the observations made as a result of this latest run: New automobile designs are less sensitive, economywise, to variations in driver technique; new powerful engines can perform economically over a wide range of road driving conditions. The run tended to prove that reasonably high power is a factor in economy if kept in reserve until needed; both high and low compression ratio engines made fine economy records.

Answering a question as to

what's in this run for the car manufacturer, Mr. Mount says that the industry's engineers have long known how to build economy-type cars, but the run has stimulated public interest in this subject. It showed," he adds, "what could be done with modifications of axle gear ratio. It was a factor in development of dual-range automatic transmissions. It has popularized overdrive. Its altitude effects have focused additional design attention upon the new, more complicated carburetors. It has emphasized well-balanced gasoline."

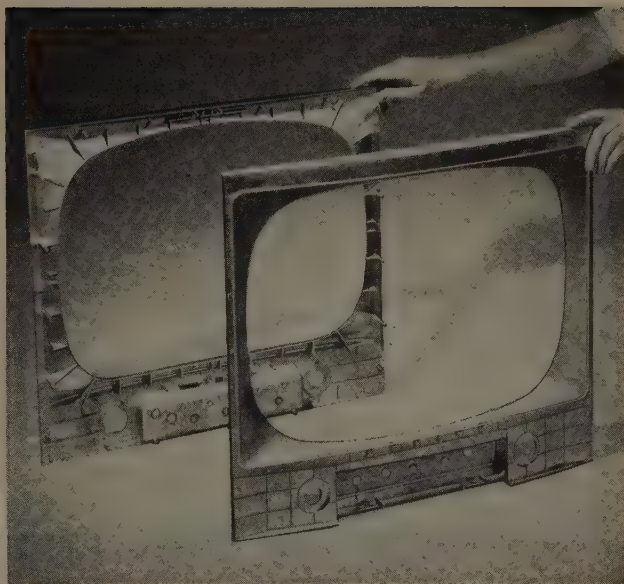
K-F Readies Sports Car

Out at Willow Run one of the problems causing some hitches is a name for the three-seater sports car Kaiser-Frazer will begin producing this July. Last week it was announced that plans have been laid to build the car which President Edgar F. Kaiser described in some detail to newsmen last fall (STEEL, Oct. 6, p. 1). For the time being the car will be identified as DKF-161.

Body of the car, which will be placed on a Henry J chassis, will be made of polyester resin and fiber glass laminate, to give the vehicle an over-all weight of about 900 pounds. With engine modifications which seem likely to be made for sports-car use, the car weight-to-horsepower ratio might be about 20 to 1, far lower than any of the production cars currently in use.

Kaiser-Frazer does not have figures yet on what the price of the new car may be, but a goal which Mr. Kaiser would like to be able to realize is about \$1 per pound. Such targets have a way of moving around, so maybe \$500 or so more might have to be added before the drive-it-away price is determined. But even so, the market potential for such a car appears to be substantial. It's good enough, Kaiser believes, so that instead of the initial 1000 unit production which the company had planned as a test, 2000 of the cars will be built.

Which producer of the plastic-glass bodies will be given the order has not yet been determined but two are being mentioned as possibilities: Winner Mfg. Co. and Glasspar Co.



Get the most for your Zinc Die Casting Dollar!

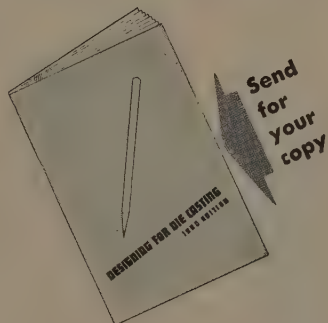
combination screen and control panel escutcheon for the latest Zenith 21-inch receiver—shown from both sides above—embodies most of the design and production advantages offered by ZINC Die Casting. How else could the escutcheon have been produced at comparable cost? Consider these details:

Many machining and assembling operations are avoided since all projections, ribs, and openings are cast or cored with a high degree of dimensional accuracy in the die casting operation.

Cost is further minimized by the high speed at which the ZINC Alloy is cast in a hot-chamber die casting machine.

Section thicknesses are kept at a minimum to conserve both metal and weight (note the strengthening ribs in the rear view) and there is no scrap loss.

Not only are decorative effects faithfully reproduced on the face of the escutcheon, but raised lettering is cast with clean-cut detail (see engraving in inset behind the control panel door at the left below). The smooth cast surface permits low cost finishing with modern organic coatings to provide a gold appearance.



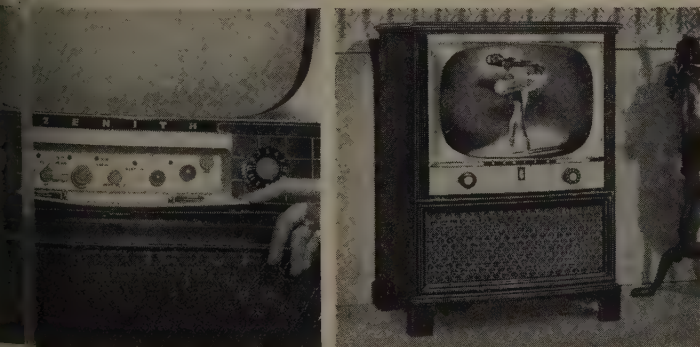
GET DESIGN DATA EARLY

The surest way to realize the full physical and economic advantages of ZINC Die Castings is through consultation with a competent die casting engineer in the early design stages. Ask any die casting company for help and ask them—or us—for a copy of "Designing For Die Casting."

The New Jersey Zinc Company
160 Front St., New York 38, N.Y.



ZINC
FOR DIE CASTING ALLOYS



Research was done, the Alloys were developed, and most Die Castings are based on
HORSE HEAD SPECIAL (99.99 + % Uniform Quality) ZINC

"That

PUNT

certainly proves

any assembly problem can be licked!"

Mike continued, "What my company* found out making football shoes can help any manufacturer get better, more economical production. I'd say that includes your refrigerators, Tom."

"How come?" said Tom.

"I never thought any screw would be just right for holding cleats to my football shoes. That's before the RB&W man came to my plant, and persuaded me to let RB&W try to develop one for me. Now I'm using RB&W screws that are ductile enough to go along with the impact, yet tough enough not to break. It just proves we should all pay closer attention to our fasteners. It really pays off!"

There's a cost-cutting lesson for you in this Rose Bowl conversation, whatever your industry. So look to your fasteners for an often overlooked opportunity to reduce costs, and strengthen your competitive position. New inventions, like RB&W's SPIN-LOCK Screw, may prove more efficient than the fasteners you're now using.** Or you may save by the stepped-up production you get from using the finest fasteners . . . RB&W bolts, screws, nuts and rivets of uniform accuracy, dependability and physical properties.

Let RB&W help you make the most efficient use of fasteners on your assembly line. Address RB&W at Port Chester.

RB&W—The Complete Quality Line. Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices: Philadelphia, Pittsburgh, Detroit, Chicago, Dallas, San Francisco. Sales agents: Portland, Seattle. Distributors from coast to coast.

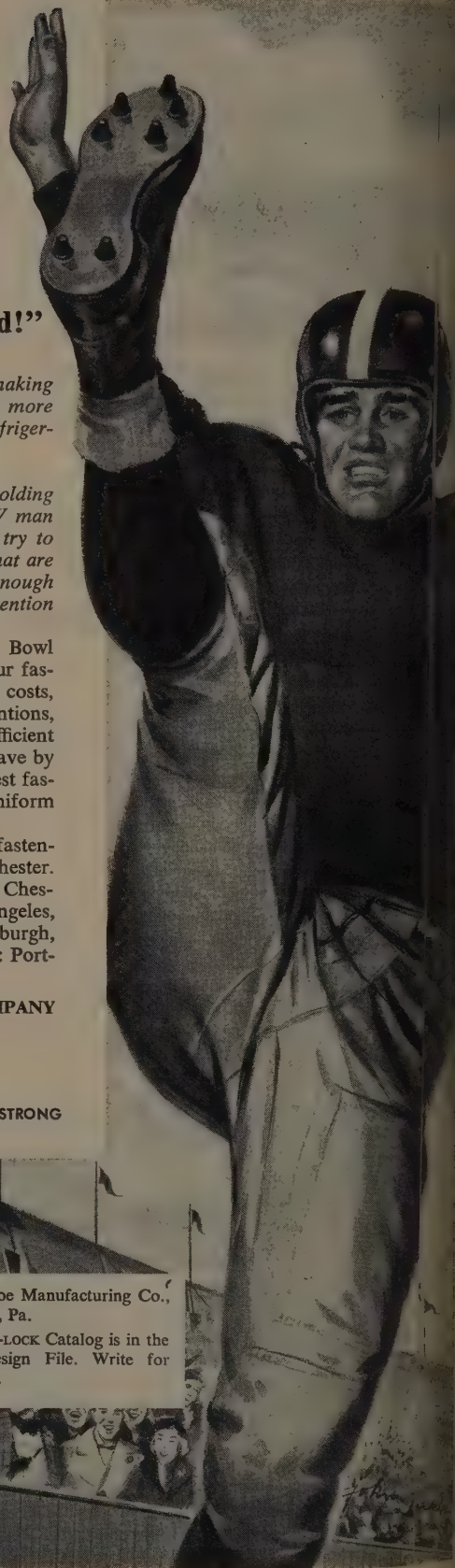
RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

RB & W

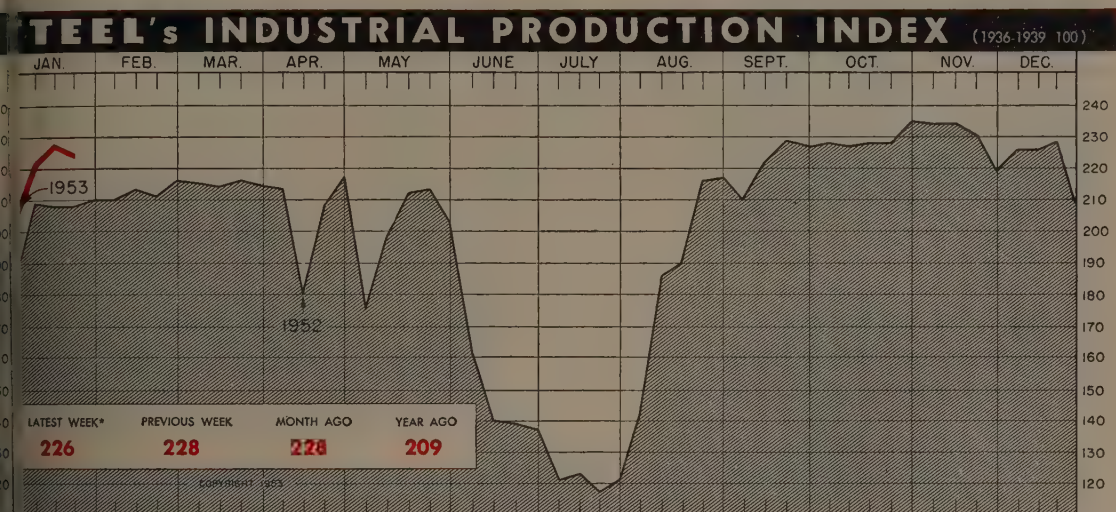
107 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

*Brooks Shoe Manufacturing Co., Philadelphia, Pa.

**New SPIN-LOCK Catalog is in the Product Design File. Write for extra copies.



The Business Trend



ended Jan. 24 Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automotive Assemblies (Wards' Reports) 20%.

Added capacity may mean more production in the next few months. The machine tool industry hopes for good sales in 1953. Industrial activity index edges down

THE'S increasing assurance of vel industrial production hout most of 1953.

Manufacturers of defense and goods are both predicting demand will remain strong available materials will in-

In addition, industry is up these forecasts with capacity.

Businessmen will spend around billion on new plant and ent during 1953, say econ- in the Commerce depart- The estimated \$26.3 billion \$600 million under the peak itures reached during 1952 s than \$100 million under in 1951. This means pro- can increase at an only lower momentum than was e in the past two years.

Leaving Off?—Another sign of egement comes from the ma- ool industry. The new or- ex of the National Machine uilders Association halted a th decline in December and up 17.1 points to 222.5 per e the 1945-1947 average. The nificance of the increase is fully apparent, since much ncrease may have resulted

from the lifting of restrictions on unrated orders. But many tool builders are saying that 1953 will be a good year, so new orders for machine tools may be at or nearing the low-point.

Plateau Reached—The nation's industrial activity also seems to have leveled off temporarily, but on a high plateau. STEEL's industrial production index in the week ended Jan. 24 edged down 3 points to 226 per cent of the 1936-1939 average. Steel production declined as a strike in the Youngstown district cut the national rate. Electricity production, automotive operations and freight car loadings made slight gains during the week ended Jan. 24.

Fast Output in Autos . . .

The automotive industry is keeping the throttle pulled out on production. Both passenger car and truck assemblies are running at unusually high levels, although car production is the more spectacular. *Ward's Automotive Reports* estimates that U. S. manufacturers in January completed 455,000 passenger cars, up 59 per cent from output in January, 1952. This 455,000-

unit turnout is still under previous estimates on passenger vehicle production. Labor difficulties and unexpected inventory snags whittled 20,000 units off the scheduled total for passenger cars in January.

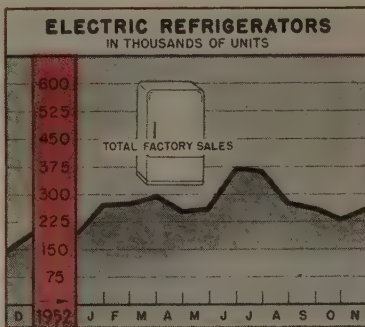
Truck production is moving along the plateau reached in December. Around 111,000 trucks were driven off production lines in January. This brings last month's output to nearly 9 per cent over truck assemblies in January, 1952.

Combined U. S. and Canadian auto-truck production in the week ended Jan. 24 attained 159,550 units, the highest weekly production since October. This output is more than 57 per cent over production in the comparable week of January, 1952.

Refrigerator Sales Up . . .

Diverse trends are shaping up in the market for household electrical appliances. Demand is warm for refrigerators and cool toward electrical stoves. The National Electrical Manufacturers Association says that factory sales of electric household refrigerators in November totaled 278,557 units, up 88 per cent from November, 1951, but 32 per cent under the post-Korea sales volume in November, 1950.

Range sales, on the other hand, in November remained under the

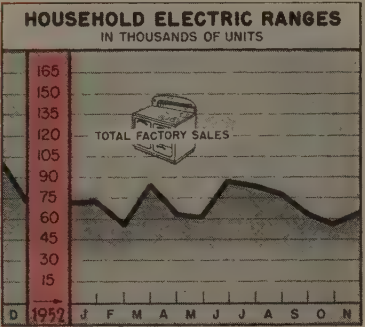


Electric Refrigerators

Total Factory Sales—Units

	1952	1951	1950
Jan.	275,297	465,903	375,856
Feb.	277,986	403,035	461,256
Mar.	298,092	558,503	586,293
Apr.	255,009	409,887	546,279
May	256,378	309,722	542,856
June	374,199	261,298	549,740
July	366,372	163,922	507,029
Aug.	272,985	165,309	518,359
Sept.	257,362	193,929	535,002
Oct.	232,931	191,519	420,431
Nov.	256,530	147,394	411,201
Dec. ....	.....	195,403	394,268
Total ....	.....	3,465,824	5,848,579

National Electrical Mfrs. Assn.

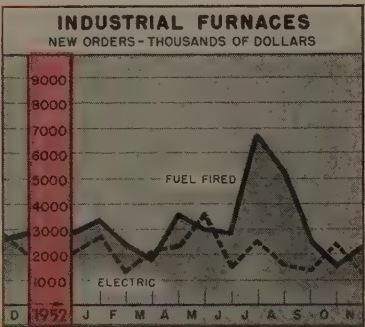


Household Electric Ranges

Total Factory Sales—Units

	1952	1951	1950
Jan.	72,830	130,316	97,925
Feb.	55,728	121,555	118,989
Mar.	83,455	159,865	145,417
Apr.	62,746	118,823	132,859
May	61,209	106,655	145,498
June	88,063	106,589	158,534
July	84,325	60,530	130,505
Aug.	77,282	64,042	132,243
Sept.	64,260	93,551	156,216
Oct.	56,784	109,043	130,452
Nov.	65,325	101,476	129,384
Dec. ....	.....	72,140	124,360
Total ....	.....	1,244,645	1,602,382

National Electrical Mfrs. Assn.

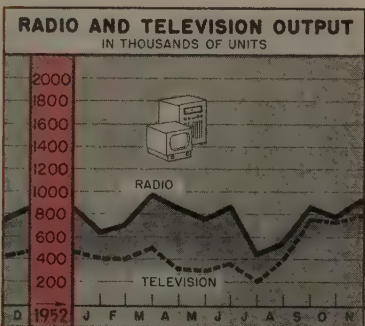


Industrial Furnaces

New Orders—Thousands of Dollars

	Fuel Fired*		Electric	
	1952	1951	1952	1951
Jan.	3,379	4,033	2,856	2,764
Feb.	2,413	4,670	1,363	3,312
Mar.	1,813	7,019	2,100	4,846
Apr.	3,606	8,497	2,298	3,657
May	3,032	5,044	3,713	4,766
June	2,954	6,259	1,552	3,370
July	6,723	5,303	2,530	5,587
Aug.	5,259	4,850	1,626	3,591
Sept.	2,462	1,821	1,412	3,250
Oct.	1,507	6,374	2,459	3,172
Nov.	2,382	2,516	1,241	2,882
Dec. ....	.....	2,875	.....	2,100

* Except for hot rolling steel.
Industrial Furnace Mfrs. Assn.



Radio and Television Output

Thousands of Units

	Radio		Television	
	1952	1951	1952	1951
Jan.	632	1,203	405	646
Feb.	759	1,313	409	679
Mar.	976	1,720	511	875
Apr.	848	1,337	323	469
May	748	1,373	309	339
June	874	1,083	361	327
July	442	548	199	152
Aug.	544	563	398	147
Sept.	896	1,100	756	337
Oct.	772	875	724	412
Nov.	924	748	750	415
Dec. ....	.....	851	.....	469
Total ....	.....	12,714	.....	5,267

Radio-Television Mfrs. Assn.

Charts Copyright 1953 STEEL

Issue Dates on other FACTS and FIGURES Published by STEEL

Construction .....Nov. 24	Gray Iron Castings..Jan. 12	Ranges, Gas .....Jan. 18
Durable Goods ....Jan. 18	Indus. Production..Dec. 22	Steel Castings ....Jan. 12
Employ, Metalwkg. Jan. 18	Ironers .....Dec. 22	Steel Forgings ....Jan. 12
Employ, Steel ....Dec. 15	Machine Tools ....Dec. 15	Steel Shipments ..Nov. 3
Feb. Struc. Steel..Dec. 22	Malleable Castings..Jan. 12	Vacuum Cleaners..Dec. 22
Foundry Equip. ....Dec. 29	Pumps .....Dec. 8	Wages, Metalwkg. .Jan. 26
Freight Cars .....Dec. 29	Prices, Consumer ..Jan. 26	Washers .....Dec. 29
Gear Sales .....Jan. 26	Prices, Wholesale ..Jan. 26	Water Heaters ....Jan. 18

same month in both 1950 and 1951. Factory sales of electric household ranges in November totaled 65,259 units, marking a 36 per cent decline from November, 1951, and 49 per cent under total unit-sales in November, 1950.

Steel Output Nears Record . . .

The steel industry is getting set to break production records again. The American Iron & Steel Institute estimates that steel mills in the week ended Jan. 31 poured 2,238,000 net tons of steel for ingots and castings. That's only 1000 tons under the record output reached earlier in January.

Furnace Orders Decline . . .

The decline in new orders for industrial furnaces seems to indicate that the peak in outlays for heavier equipment is past. The Industrial Furnace Manufacturers Association says that new orders on furnaces (other than for hot rolling steel) in November totaled \$2.4 million compared with \$2.5 million in November, 1951 (See chart, left). New orders for fuel-fired furnaces lagged under 1951 in eight of the first 11 months.

An even more dramatic order lag has occurred in the electric furnace industry. Makers of electric furnaces in November received \$1.2 million in new orders, less than half the value of orders placed in November, 1951. This marks the tenth consecutive month of 1952 that orders for electric furnaces lagged behind the same months a year earlier.

TV Market Soars . . .

The glowing optimism that television set makers are voicing is easily explained by the growth and prospective growth of TV stationing. Last spring, the nation had 108 TV stations in operation. The Federal Communications Commission then lifted its ban on new stations. Since May, 1952, the commission has authorized the building of 100 more stations.

Coal Tonnage Lessens . . .

Bituminous coal production is continuing at low level, despite predictions of increased consumption.

BAROMETERS OF BUSINESS

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Output (per cent of capacity) ²	98.0	99.5	99.5
Electric Power Distributed (million kwhr).....	8,144 ¹	8,121	7,616
Cuminous Coal Output (daily av.—1000 tons)...	1,586	1,591	1,887
Petroleum Production (daily av.—1000 bbl).....	6,535 ¹	6,524	6,194
Construction Volume (ENR—millions).....	\$229.1	\$548.8	\$309.3
Automobile, Truck Output (Ward's—units).....	149,550	148,049	97,722
TRADE			
Light Car Loadings (unit—1000 cars).....	710 ¹	705	728
Business Failures (Dun & Bradstreet, number)...	140 ¹	158	124
Currency in Circulation (millions) ³	\$29,687	\$29,884	\$28,342
Dept. Store Sales (changes from year ago) ³	+2%	-3%	-14%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)....	\$18,496	\$16,551	\$17,208
Federal Gross Debt (billions).....	\$267.3	\$267.3	\$259.3
Trading Volume, NYSE (millions).....	\$19.9	\$19.7	\$16.3
Stock Sales, NYSE (thousands of shares).....	6,866	7,723	9,202
Bonds and Investments (billions) ⁴	\$78.0	\$78.1	\$74.2
United States Gov't. Obligations Held (billions) ⁴	\$32.3	\$32.4	\$32.3
PRICES			
FEEL's Weighted Finished Steel Price Index ⁵	181.31	181.31	171.92
FEEL's Nonferrous Metal Price Index ⁶	213.2	213.2	243.6
Commodities ⁷	109.6	109.8	113.5
Commodities Other Than Farm and Foods ⁷ ...	112.8	112.8	114.6

*On request. ²Preliminary. ³Weekly capacities, net tons: 1952, 2,077,040, 1953, 2,254,-

⁴Federal Reserve Board. ⁵Member banks, Federal Reserve System. ⁶1935-1939==

⁷1936-1939==100. ⁸Bureau of Labor Statistics Index, 1947-1949==100.

1953. Miners in the U. S. are
giving about 1.5 million tons of
output per day, while a year ago
the average was over 1.9 million
tons, says the National Coal Asso-
ciation.
Behind the low output lie the
factors of higher wages and
large industrial stockpiles. Many
producers are being forced to
curtail operations.

Vacuum Sales Climbing ...

Manufacturers of vacuum clean-
ers in 1952 swept up 4 per cent
more unit-sales than during the
previous year. So says the Vac-
uum Cleaner Manufacturers Asso-
ciation after a survey of member
firms. Factories sold 2,841,-
033 standard-size household vacu-
um cleaners last year, compared
with 2,729,104 units in 1951. In
December, factory sales totaled
249,200 units, 2 per cent under No-
vember and 8 per cent over vacuum
cleaner sales in December, 1951.

Retail Volume Jumps ...

Impressive sales were rung up by
vacuum cleaners' retail stores in Decem-
ber, dollar volume that month rose
10 per cent over December, 1951,
says the Commerce department's
Bureau of Business Economics.
Retail sales in December reached

\$16.9 billion, up \$1.6 billion over
December, 1951. Durable goods
volume reached \$5.3 billion, nearly
\$1.2 billion over a year earlier.
Sales of automotive retailers
climbed to \$2.4 billion, or \$439 mil-
lion over volume in December, 1951.

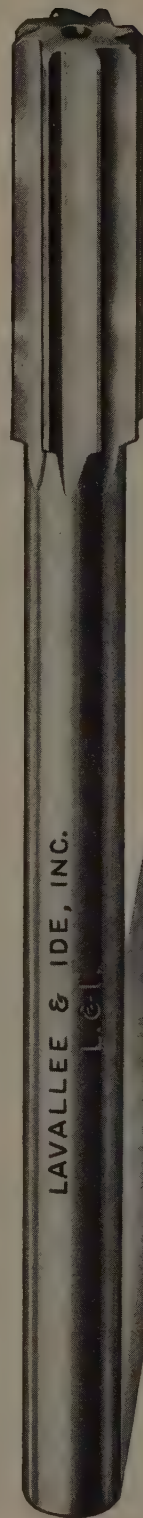
Trends Fore and Aft ...

Contract awards for heavy con-
struction are running about 31 per
cent over the dollar volume of a
year ago. . . Shipments of gas
ranges in the last half of 1952 were
13 per cent over the same 1951
months, but total shipments last
year were down 7 per cent. . . Mild
weather this winter is cutting the
demand for fuel oil. . . Bank clear-
ings are rising rapidly. . . Whole-
sale prices on metal products are
leveling off, although most other
commodity prices continue to de-
cline. . . Business failures in 1952
were slightly under those of a year
ago. . . Electricity production may
have passed its seasonal generation
peak in mid-December. . . Ship-
ments of metal cans in the first
11 months of 1952 were slightly
over the same months of 1951. . .
Industry shipments of automatic
gas water heaters in December
soared 48 per cent over December,
1951. . . Average hourly pay of
union building trades workers in
1952 increased 32 cents to \$2.61.

for
Quality
Reamers



stands
alone



LAVALLEE & IDE, INC.



The Reamer Specialists

LAVALLEE & IDE, INC.
CHICOPEE, MASS.

No Pressure Wipe-Off on Gears Lubricated with Sun 897 Grease

Even heavy tooth loading won't cause Sun 897 Adhesive Pressure Grease to squeeze out. It stays on the gears, prevents metal to metal contact, prolongs gear life, and reduces lubrication costs. Sun 897 is most valuable where *throw-off* with resultant wear and spotting of products must be avoided. It is easily applied with a brush on open gear sprockets, chains, slides, cams, cables, couplings and linkages. For complete information, consult your nearest Sun representative or write Department S 2.

SUN INDUSTRIAL PRODUCTS

SUN OIL COMPANY

PHILADELPHIA 3, PA.

SUN OIL COMPANY, LTD.

TORONTO & MONTREAL



BLACK GEAR COMPOUNDS oxidize, harden and wipe off quickly under pressure. Arrows indicate where wipe-off of the compound has left the gears unprotected by a lubricant. Metal to metal contact causes excessive wear and thus materially shortens the life of gear.

NO SQUEEZE-OUT due to pressure. A thin, transparent film of Sun 897 Adhesive Pressure Grease stays evenly distributed on the gears and gives positive lubrication at all times. Sun 897 is water resistant and can be easily applied with a brush.

Men of Industry



ANGUS M. BROWN
... new duties at Lamson Corp.

Angus M. Brown, manager of commercial sales, Lamson Corp., Syracuse, N. Y., assumed additional duties as manager of the Billmyre division.

James E. Wilson, former president of General Electric Co., was elected chairman of the executive committee of the board of directors of W. R. Grace & Co., New York. Mr. Wilson's association with the company began as a director consultant early in 1952, following his 51 years with General Electric. In 1950, he was named president of the ODM.

Hollingshead Corp., Cambridge, Mass., named Harold L. Danforth, former assistant sales manager of the automotive private division, as manager of all brand sales.

Drainage & Metal Products, a subsidiary of Armco Steel Corp., Middletown, O., appointed division managers. Tom M. King is to be manager of the western division, with headquarters at Houston. William O. Watson was named manager of the eastern division, with offices in Baltimore.

John C. Candee was elected vice president of the Kinetic Dispersion Co., Buffalo.



DEAN W. PAUL
... General Dynamics div. sales mgr.

Dean W. Paul was appointed sales manager of the electro dynamic division of General Dynamics Corp., Bayonne, N. J. He has been engaged in manufacture, sales and distribution of industrial electric motors for 14 years.

Calumet & Hecla Inc., Calumet, Mich., appointed two executives to new management positions. They are Robert N. Bayless, new director of management planning, and Edward C. Ames, director of employee and public relations. They will join the company Feb. 16.

E. P. Dunlaevy, vice president of Phelps Dodge Copper Products Corp. was elected to the board of directors of G & W Electric Specialty Co. of Chicago.

Three appointments were announced by Caterpillar Tractor Co., Peoria, Ill. L. C. Allenbrand, manager of the merchandise department, was designated general manager of the York, Pa., plant. Factory manager of the plant will be Hans Erich. Taking Mr. Allenbrand's former position will be Frank Bovenschulte.

Emhart Mfg. Co., Hartford, Conn., named Warren E. Hill vice president in charge of operations, a new post. His activities will be with all Emhart operating units.



H. C. ALLINGTON
... V. P.—sales at CF & I

H. C. Allington was elected vice president in charge of sales of the eastern division of Colorado Fuel & Iron Corp. He will be located in New York.

At Westinghouse Electric Corp., Pittsburgh, Carroll B. Dick was appointed manager of the Westinghouse electric micarta division, to be in charge of the micarta division plant at Trafford, Pa., and the Plywoods-Plastics Corp. plant at Hampton, S. C. Manager of the corporation's transportation and generator division at East Pittsburgh, Pa., is P. C. Smith, who was assistant to the manager before his promotion.

Donald E. Douglas was elected vice president of Pacific Car & Foundry Co., Renton, Wash. He will continue as treasurer of the company and its subsidiary, Kenworth Motor Truck Corp., Seattle.

Paul Dye was named to the new position of general sales manager of Admiral Corp., Chicago. He has been manager of distribution since 1948, having joined the company in 1946 as Admiral's midwest regional manager.

Robert C. Stolk, assistant manager of sales for the Pacific division of American Can Co., San Francisco, was promoted to manager, to suc-



NATE WADE
... new Osco Steel post



EDWIN M. CLOSE
... purchasing agent at Hanson



RALPH W. SEELY
... Consolidated Western mgr.

ceed **Allen C. Staley Jr.**, who was appointed assistant general manager of sales. **C. W. Curry**, formerly sales division manager for the company's central division, will become assistant manager of sales in place of Mr. Stolk.

Nate Wade was made executive vice president at **Osco Steel Co.**, Cleveland. He had been general manager of the company's Detroit branch.

Gilbert C. Strege was appointed president of **Baker-Lull Corp.**, Minneapolis. The company changed its name from **Lull Mfg. Corp.** Mr. Strege was formerly manager of **McBee Co.**'s technical division in Milwaukee.

Walter E. Palmer, who joined **All-State Welding Alloys Co. Inc.**, White Plains, N. Y., in 1951, is now sales manager. Previously he was a regional manager of the company.

Edwin M. Close was appointed purchasing agent by **Hanson-Van Winkle-Munning Co.**, Matawan, N. J.

Chain Belt Co., Milwaukee, announced that **Bernard G. Schneider** will fill the newly created position of assistant chief engineer, conveyor equipment section of the company's conveyor and process equipment division. He had been manager of engineering services.

E. M. Richardson, formerly manager of eastern division sales, was designated general sales manager of **Nice Ball Bearing Co.**, Philadelphia. He joined the company in 1945 as a sales engineer.

Ralph W. Seely, vice president of **Consolidated Western Steel Division** of **U. S. Steel Corp.**, was appointed general manager of the division under general direction of **Alden G. Roach**, president. His offices will continue to be in Los Angeles.

Dr. Cyril G. Veinott joined **Reliance Electric & Engineering Co.**, Cleveland, as consulting engineer on A-C machinery. Formerly, he was with **Westinghouse Electric Corp.**

Detroit Steel Products Co., Detroit, advanced **David S. Burnett** to sales manager of the automotive division. He succeeds **Samuel P. Hess**

who is retiring after 40 years' service.

New general superintendents of **U. S. Steel Corp.**'s **American Steel & Wire Division** works are **W. B. Houk** and **Umbert F. Corsi**. Mr. Houk was named general superintendent at the division's **Sohm Works**, Worcester, Mass. Mr. Corsi was appointed to a similar position at the **Steel & Wire Works** in Donora, Pa.

Robert S. Solinsky was elected president and a director of **National Can Corp.**, New York. He succeeds **C. L. Thompson**, who continues as board chairman.

Clark E. Center was made vice president of **Carbide & Carbon Chemicals Co.**, in charge of atomic energy work at **Union Carbide & Carbon Corp.**, New York. He succeeds **George T. Felbeck**, who will work on engineering problems of the corporation.

M. Denis Kendall, executive vice president of **Brunswick Ordnance Corp.**, a subsidiary of **Mack Trucks Inc.**, was appointed vice president of **Mack Mfg. Corp.** to assume responsibility for all manufacturing at Mack plants. His headquarters will be in Allentown, Pa.

Appointments at **Allis-Chalmers Mfg. Co.**, Milwaukee, result in **Arthur F. Erwin** and **Edward F. Brill** becoming manager and chief engineer, respectively, of the atomic power section. At the same time, **J. T. Graham**, a resident representative in the Jacksonville, Fla., office of **Allis-Chalmers** general machinery division, was advanced to manager there.

Cleveland-Cliffs Iron Co., Cleveland, elected **Raymond J. Wan**, president and director of the **Van Engineering Co.**, Warren, O., as a director of **Cleveland-Cliffs**. He succeeds the late **W. H. Gerhaier**.

James B. Clow & Sons, Chicago, elected **William E. Clow Jr.** chairman of the board and **John Maden** president. The company also appointed **G. R. Kinnally** general manager of the jobbing division.

At **Kaiser Steel Corp.**'s **Fontana** works, **Fontana, Calif.**, **Gordon A. Zwissler** was made division superintendent, rolling. **C. A. MacIwaine**

Another Special by Cross

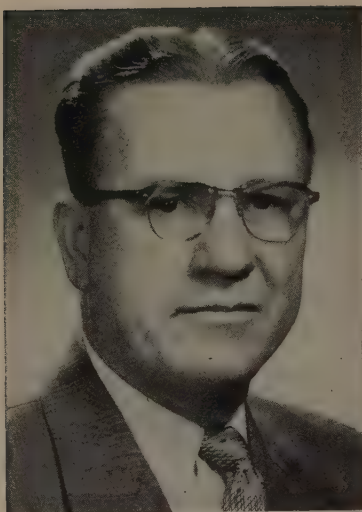
**Mills, Bores,
Drills,
Chamfers and Taps
Tail Pipe Pad**

- ★ Mills, bores, drills, chamfers and taps tail pipe pad of exhaust manifold for six-cylinder engines.
- ★ 120 pieces per hour at 100% efficiency.
- ★ Six stations—one for loading and unloading and one each for milling, boring, drilling, chamfering, tapping.
- ★ Fluid motor-driven index table.
- ★ Construction to J.I.C. standards.
- ★ Other features: Hydraulic feed and rapid traverse; individual lead screw feed for tapping; hardened and ground ways; automatic lubrication.

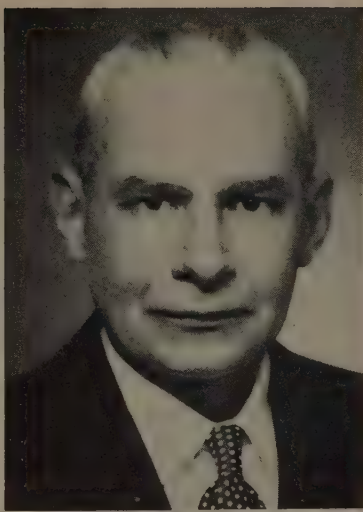


Established 1898

THE **CROSS** CO.
DETROIT 7, MICHIGAN
Special MACHINE TOOLS



H. J. ZILSKE
... promoted at Hydraulic Press



JAMES M. WHITE
... V. P.—American Car & Foundry



BURTRON ZOOK
... sales mgr., Jensen Specialties

was appointed assistant to controller of the corporation, and Reynold C. MacDonald became superintendent of the blooming and structural mills of the Fontana works. Robert H. Olsen, division manager of works accounting was appointed assistant controller at Fontana.

Hydraulic Press Mfg. Co., Mt. Gilead, O., promoted H. J. Zilske to chief engineer of the hydraulic power division. He has been with the power division three years.

Appointments at Westinghouse Electric Corp., Pittsburgh, include W. R. Sugg Jr. as assistant manager of the transportation and generator division, and G. A. Moore as manager of manufacturing.

Alvis M. Cole was made manager of quality control at the Ford Motor Co. assembly plant in Buffalo. He succeeds Edward J. Young, who will be manager of quality control

at the Ford aircraft plant in Chicago.

James M. White was elected vice president in charge of manufacturing at American Car & Foundry Co., New York. He succeeds Robert W. Ward who retires.

John H. Wintersteen, advertising manager for Kaiser Steel Corp., with headquarters in Oakland, Calif., transferred to Bristol, Pa., where he will assume a new position as manager of public relations and advertising for Kaiser Metal Products Inc.

American Locomotive Co., Schenectady, N. Y., designated Alexander Ross as chief engineer and H. R. Sennstrom as executive engineer.

White Motor Co., Cleveland, named two branch managers. Earl H. Lewis is the Philadelphia branch

manager, after managing the company's sales training program in Cleveland during the past year. E. S. Hoke is to be manager of the Cleveland branch. Formerly he was assistant to the vice president in charge of sales.

Burtron Zook was appointed sales manager for Jensen Specialties Inc., Detroit, to supervise industrial ovens and heating equipment. Paul H. Goodell, sales manager for three years, will be retained as a consulting capacity.

John W. Scallan, vice president in charge of midwestern sales at Pullman-Standard Car Mfg. Co., Chicago, was named vice president and general manager.

P. R. Mallory & Co. Inc., Indianapolis, promoted George S. Bor to sales manager of its metals and ceramics division. He previously was chief engineer of that division.

OBITUARIES...

George G. Thorp, 84, former president of Illinois Steel Co., died at Madison, Wis., Jan. 19. He supervised the design, construction and operation of the Gary, Ind., steel works now owned by U. S. Steel Corp.

J. Howard Van Sciver, 65, former president of the Bethlehem Foundry & Machine Co., Camden, N. J., died at Miami Shores, Fla., Jan. 18.

Fred Mackwirth, 73, founder of the Georgen-Mackwirth Co., Buffalo, and later associated with Buffalo Forge Co., died Jan. 20.

P. J. McAuliffe, 45, purchasing agent for the Orange, Tex., plant of U. S. Steel Corp.'s Consolidated Western Steel Division, died Jan. 8. A native of New Orleans, he resided in Beaumont, Tex.

Charles H. Palmer, 86, retired vice president and sales manager of Na-

tional Screw & Mfg. Co., Cleveland, died Jan. 19.

Frank H. Elsinghorst, 64, owner and operator of Elsinghorst Iron Co., Buffalo, died Jan. 20.

Frank O. Humbarger Jr., president and treasurer of Massillon Steel Casting Co., Massillon, O., died Jan. 20.

Arthur W. King, 69, industrial specialist with Briggs Mfg. Co. Detroit, died Jan. 18.

5 MINUTES PER PIECE WITH THIS VERSATILE NEW KEARNEY & TRECKER MILWAUKEE CH MILLING MACHINE



is fabrication of aircraft parts from 75ST
aluminum alloy

HERE ARE THE FACTS ON THIS JOB:

Mar Vista Engineering Co., Los Angeles, Calif.
5 hp, No. 2, Model CH, Plain Style
used with Universal Milling Attachment.
Aircraft fitting for horizontal stabilizer.
75ST aluminum alloy.
One blade — 8" fly cutter.
875 rpm, 9 ipm feed.
.050".
12 pieces per hour — all sides milled.

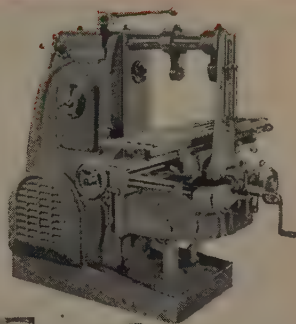
STIGATE the versatile new CH line of milling machines. Their features are job proven to give you cost-cutting plus greater productivity, better finished products. Contact your nearest representative or write: Kearney & Trecker 5784 W. National Avenue, Milwaukee 14, Wisconsin.

KEARNEY & TRECKER
MILWAUKEE
MACHINE TOOLS



CH MILLING MACHINE
FEATURES THAT HELPED
INCREASE OUTPUT —
CUT COST PER PIECE

5 hp No. 2 MODEL CH
Plain Style Milling
Machine.



Smoother feed performance
through a heavy duty 2" dia.
table feed screw. 23% greater
bearing contact between
screw nut for longer screw
life and accuracy.



Greater cutting efficiency
— design refinements in
3-bearing spindle and a
train of heavy duty, wide-
faced, forged steel gears,
hardened and specially
processed.

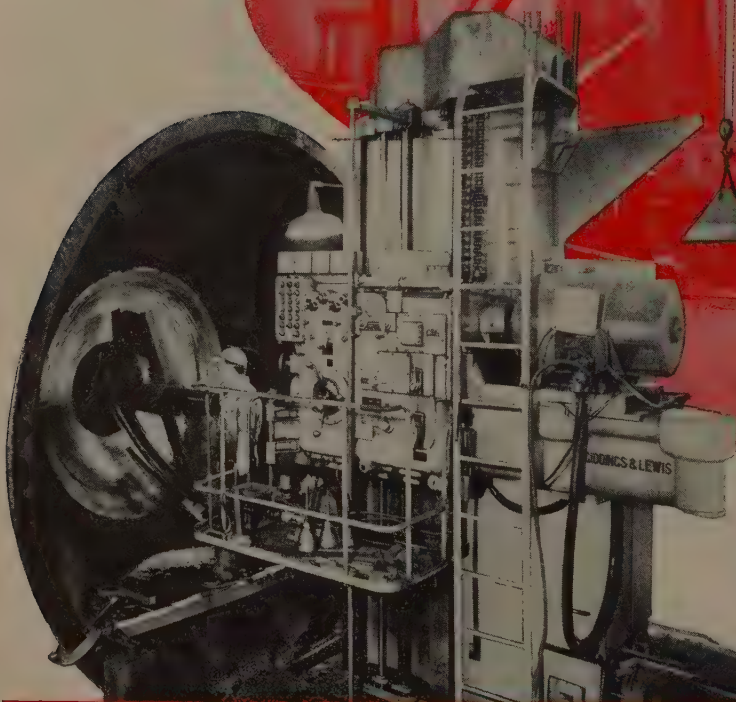
Speed range—16 speed changes
are provided from 25 to 1500
rpm. **Extra-wide feed range**—
16 changes from 1/4" to 32" per
minute meet requirements of
new metals and cutting tools.



POLLOCK facilities encourage higher specification standards in steel construction

Your progressive ideas for blast furnaces and steel plants are not restricted because of any lack of manufacturing facilities when you are doing business with Pollock. Nor do Pollock engineers, for lack of production equipment, feel restrained in making recommendations.

Pictured here is a Giddings and Lewis boring mill at The William B. Pollock Company, which is machining the inside surface of a 17-ton blast furnace bell. Every company does not have facilities to do this. The Giddings and Lewis boring mill may be used for machining large and small ladle trunions, castings and weldments. A surface of 35-feet long, 8-feet wide and 8-feet high may be bored, drilled and faced. This machine is part of the wide range of facilities in the Pollock plant and the operation here is one of the examples where you can measure the value of Pollock facilities by extra steel production.



Pictured above is the Pollock 50-ton diesel crane for field erection and the self-sufficient tool car with compressor, electric generator set and a full set of tools to erect a complete blast furnace.

POLLOCK

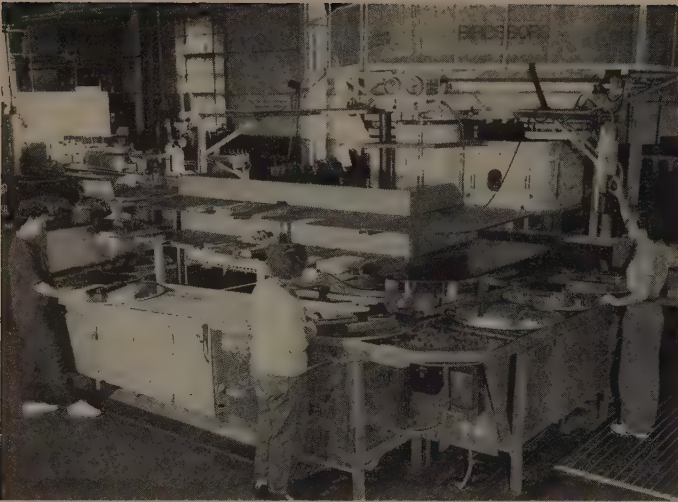
THE WILLIAM B. POLLOCK COMPANY • YOUNGSTOWN, OHIO

STEEL PLATE CONSTRUCTION • ENGINEERS • FABRICATORS • ERECTORS

BLAST FURNACES • HOT METAL CARS AND LADLES • CINDER AND SLAG CARS • INGOT MOLD CARS • CHARGING BOX CARS • WELDED OPEN HEARTH LIFTS

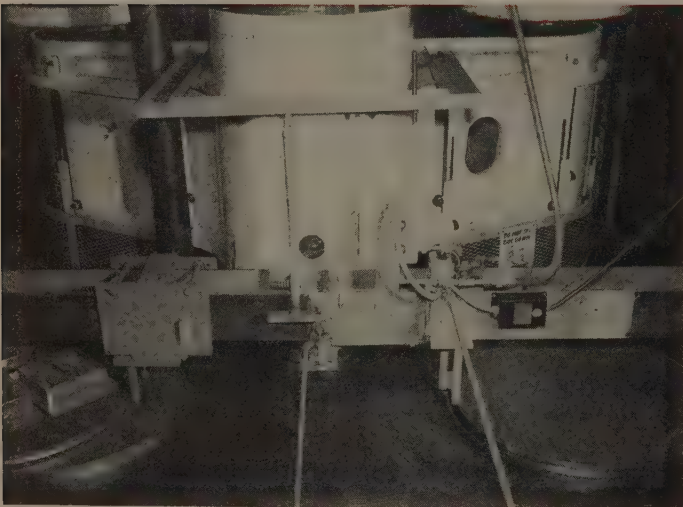
I GOT TO PAY—A warning to manufacturers of destructive testing equipment is issued by an executive of a leading manufacturer in the field. To often experts in the field talk about the things equipment will do in the scientific sense without any mention of how it can effect savings at the plant using it. That the process can more than pay

COMING AND GOING—Drawing a cartridge case to a length of 24 inches ordinarily requires a long return stroke and reduces the amount of working time in the press cycle. A press that works in both directions overcomes this difficulty and has other benefits including reduced equipment cost. Clearing Machine Corp. built the press for Rheem Mfg. Co.'s New Orleans plant. Requiring no foundation pits, the press is specially suited to the plant location since soil conditions at the site are unstable. p. 122



General view of the conveyor in front of the press shows the front belt conveyor and, at right, the gravity-feed load side. Eight circular plates or buttons are used

Conveyor Boosts Press Operations



Two of the three platens are in position for loading, at right, and unloading. Fingers push die-carrying buttons on and off. Third platen is under press ram

Conveyor speed is synchronized with speed of press cycle. Increase of 48 per cent in total production, less operator fatigue and safer working conditions are advantages

CONVEYORIZING one of our rubber pad forming presses resulted in a 48 per cent increase in total production at North American Aviation Inc., Los Angeles.

The press is a 2000-ton Bilsboro three-column hydraulic. The only one of its kind, it was originally built for Convair, during World War II for rubber forming.

New Container—It has a 10-foot diameter indexing plate which is indexed for three positions. This revolving table carries the unformed blanks beneath the rubber container mounted on the press ram.

To parallel North American's high-pressure rubber forming program, a 30-inch diameter container developing 5651 psi was designed for use in the press.

The Reasons—Two big problems showed up in the operation of the press. First, because of the amount of time required to change parts on their individual dies, there was no continual cycle of operation. Second, as a result of the long reach required of the operators in removing various parts from the dies, a surprisingly high degree of operator fatigue showed up.

To overcome these problems of idle press time and employee fatigue we developed and built the mechanized conveyor. This conveyor still utilizes the 10-foot diameter indexing plate, but we added 1/2-inch thick by 30-inch diameter plates called buttons.

These buttons plus existing steel platens made possible removal of several dies at once from the indexing plate to a position where parts could be changed by operators.

The Go-Around—A three-sided rectangular conveyor is placed in front of the press, connecting two of the three indexing positions for the buttons to move upon.

By LYLE BOARTS

Foreman

and

EUGENE SEARCY

Assistant Foreman

Machine Forming

North American Aviation Inc.

Los Angeles



Fingers in foreground pull loaded button onto platen. As revolving table indexes, button will be fed under the ram. In background, fingers unload formed parts

When the operator pushes the button he energizes the indexing plate and it revolves in a clockwise direction. This moves the steel platen and button forming dies to the forming position under the press ram.

Advance—The preceding button is moved from under the ram to the unload position. The platen was in the unload position moved to the spot. As the indexing plate reaches its position the press ram descends automatically.

Conveyor—This arrangement attached to the ram makes contact with an air switch which actuates a Power Dome double-acting cylinder mounted over the load and unload positions.

Fingers—This cylinder mounted underneath of an H-beam has fingers at each end extending

downward. As the cylinder is actuated these fingers pick up the button from the conveyor load position and pull it onto the revolving indexing plate. At the same time fingers at the opposite end of the beam push formed parts on the other button off the unload position onto the conveyor.

As the button comes off the indexing plate it is gravity fed down the first leg of the conveyor and is stopped at the bottom by an air cylinder. Here, formed parts are

removed from their dies. As the brake is actuated by an air valve mounted at the base of the ram, it is timed to allow only one button to pass through. This gives uniform spacing to the buttons as they come onto the front conveyor leg.

Synchronized—Front leg of the conveyor is a belt-type unit powered by a vari-drive. This type was used so the conveyor could be adjusted to the press speed.

As the buttons are picked up by the belt conveyor they are moved slowly up an incline while the operators place unformed blanks on the dies.

Advantages—When they reach the top of the incline the buttons are again gravity fed on the third leg of the conveyor. Another air-operated brake at the bottom of this leg releases a loaded button once each cycle and allows it to advance to the pull-on position.

After repeated studies, it was found that eight buttons with four operators would maintain a continuous flow of unformed parts to the press so the maximum number of ram hits could be obtained.

Advantages in the new system are: Safer working conditions with employees working away from the ram, decreased employee fatigue with shorter reaches for the workers and a 48 per cent increase in total production.



As buttons start up the front belt conveyor, operator places blanks on the dies. Air-actuated brake at center allows one button per machine cycle to feed through

Foundry Facilities



When pouring brass castings, molds of a similar size are grouped together so difference in pours can be gaged to eliminate excessive amount of leftover metal

With squeezer machines molding both halves of the mold at the same time and a few other changes in their facilities, this company stepped up deliveries 220 per cent



Plate patterns are stored right at the molding machines. If large or rush orders are required, several pattern can be made and a like number of machines put into service

FASTER DELIVERIES and lower prices provide two big advantages of altered casting facilities at Baldwin-Lima-Hamilton Corp., Philadelphia.

Regrouping its small iron and brass casting facilities and adding to the squeezer and roll-over molding-machine lines has enabled the company to increase its capacity particularly for small and medium-sized castings up to 1500 pounds.

Wide Assortment—In this line, 110 brass and 20 iron alloys are available. Among the former are high-strength manganese bronzes, aluminum bronzes, silicon bronzes and nickel-tin bronzes. The 20 iron mixes include alloys of nickel, chromium, molybdenum and copper. Also available is a selection of heat and acid resisting irons.

At the center of the mechanized molding setup are the iron cupola and brass furnaces. Around these the sand mixing and distributing equipment to feed the various bays containing the automatic molders is arranged.

The squeezers, for small casting molds (50 pounds and under), are



Squeezer machines produce molds ready for pouring. Plate separates pattern halves—complete mold is squeezed at once. Top half is lifted off, plate removed, halves mated, removed from flask

ded to Production

ed two in a bay in line with
-over machines.

Halves—The roll-over ma-
and a pin-lift molder con-
a unit for making molds of
s weighing up to 1000
Increased production speed
ned by molding the drag on
lover and the cope on the
chine.

Completed the two sections
position to be clamped to-
and placed on the pouring
or. Six roll-over and eight
r machines are installed.
roll-over machines are avail-
r making castings up to
unds.

Hot—Coming from the
bays the molds converge
atral pouring area conveni-
t the cupola and brass fur-
Molten metal is delivered
to the molds in a preheat-
lage.
se of well-arranged equip-
me consumed in the pour-
eration is so short that the
tal reaches the mold at near the
temperature.

Per Pound—Baldwin of-
eel the new arrangement
es maximum advantage of the
conic sand mixing and han-
g equipment by speeding up
ding and pouring opera-
ns. They report casting deliv-
ave been speeded up 220
t. Another advantage is
ting prices have been low-
much as 5 cents a pound.
from faster deliveries and
prices, the method shows
or advantages. It elimi-
tes the human element in sand
g. It assures more con-
ant pouring temperature, reduces
e chance of casting porosity and
more uniform grain struc-

Uni-
m machine-packed molds
gineered gates and risers
er control of pouring tem-
erature
add up to faster deliveries
er prices. Rigid inspec-
sure high quality of the

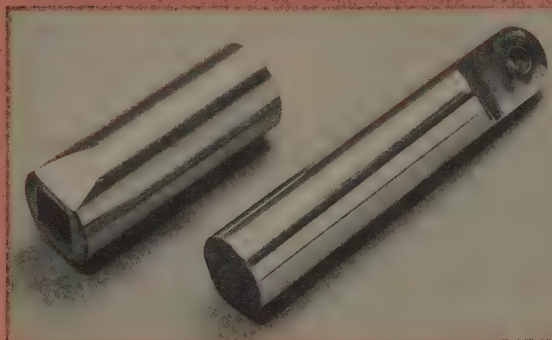


Pin machine, left, and roll-over, right, operate as a unit to produce both halves of the mold. After being molded in roll-over, lower half moves to pin machine where top half is fitted in place

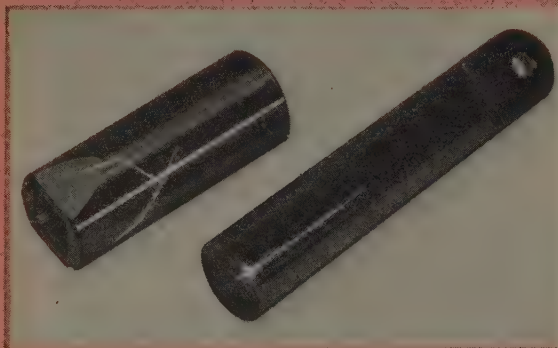


Molded on the squeezer machines, these plug-valve bodies are made in a variety of sizes and require little machining. Close control of sand mixtures provides castings with smooth surfaces

TESTING BRIGHTENS PROFIT PICTURE



Aircraft parts shown above after finishing are an example of wasted man-hours and money. Under black light heat treat cracks and seam are visible



Selling nondestructive testing to management requires economic justification. Accurate cost figures are needed to show the real value of these operations in boosting earnings

By W. E. THOMAS
Vice President
Magnaflux Corp.
Chicago

INTELLIGENT industrial management doesn't employ any process unless it more than pays its way, except when that process is forced upon it by outside pressure.

People in nondestructive testing tend to tell themselves how wonderful the methods are developed in their field, talk proudly of efforts to develop greater ability to use these developments and enjoy describing new equipment designed to do new things. Far less frequently is any consideration given to the dollars and cents reasons why industry buys the testing machine. Thinking is usually along the lines of what nondestructive testing can do more than why it is of value that it be done. Yet that why is of the utmost importance and management weighs it in the balance with dollars as the standard.

Basic Requirements—Nondestructive testing is used either to

reduce production costs, or losses, or else it is used to assure serviceability of the product. It often is used for both reasons, because service requirements determine the acceptable quality level, which dictates the degree of control of manufacturing processes needed to keep the quality acceptable at lowest cost. The inspection to obtain lowest cost manufacture reaches back to receiving inspection to casting or forging control, or even farther back to the inspection of billets and rolled stock.

This leads directly to the justifying economic balance for any inspection: Is the cost of late rejection or failure of parts greater than the cost of inspection by nondestructive testing methods needed to control the critical defects? If so, the test is fully justified.

Consider some of the more complex problems encountered in the manufacturing industries.

Like Dimensioning—Inspection is conducted to certain specifications. All specifications must include a tolerance, because absolute perfection is seldom if ever attained, and is more by accident than by design. In dimensional inspection these tolerances are expressed in parts of an inch, above or below the nominal size.

In radiography, for example, a specification may be expressed as, "Minor scattered porosity acceptable, no shrink or cracks allowed." The tolerance is expressed in a form as understandable to the foundryman and the radiographer as the thousandths of an inch are to the dimensional inspector.

Determine Cost—Standards and the tolerance are most important in the manufacturing cost of any product. The designer wants to specify a tight tolerance—the production man wants to work to "loose" tolerances—management

something in between. The tolerance from management's point is at the point of maximum value added by the manufacturing process. It is to that tolerance in inspection specifications should be written.

Another approach could be made to determine where nondestructive testing is used in industry, and to learn why it is used in various locations. Accepting the fact that the one and only reason for nondestructive testing is to save money, then the reasons these methods are used is the justification of the economic savings.

Points—Some of the common points of steel from the source of raw material through its preliminary fabrication; its finishing processes, its salvage and its scrap are illustrated. All operations are not covered nor production shown, yet the picture is typical of much of our metalworking industry. For example, steel is produced in the mill and shipped to customers as billets, bars, plate, pipe, etc. depending upon the end product and the quality demanded of it, these products receive varying degrees of inspection. In this chart the large dots indicate some of the locations in the flow of pro-

duction where inspection operations are being performed.

Each plant inspects raw material. Each inspects final production. Each attempts salvage operations, and then inspects to see that the product has been brought within acceptable standards. Not all of it can be saved and there is scrap material. Fortunately there is one customer for that scrap, and back to the mill it goes, though at a considerable loss.

Industry is full of operations which are wonderfully designed to improve materials—and which can, at the same time, spoil it. We inspect to look for this spoilage, but do it for many reasons.

Positive Tack — These reasons are not merely to reject the bad parts and sell them back to the mill—though one would think that that was the first and last reason from observations in many shops. That is a negative philosophy. A positive approach is based upon saving money—yes, and upon making money. This must be thoroughly worked out to be accepted by management and inspection personnel, and put into practice.

Of considerable help in this endeavor can be the cost accountant, though his help is seldom enlisted. We sometimes see the cost man estimate the cost of performing

inspection operations. We seldom see him obtaining statistics on the values of those operations. Cost versus value is the key item.

The inspector is often faced with the problem of determining the economical justification for inspection of raw or semifinished material. Management may not be aware of the actual production savings which can be earned by early inspection.

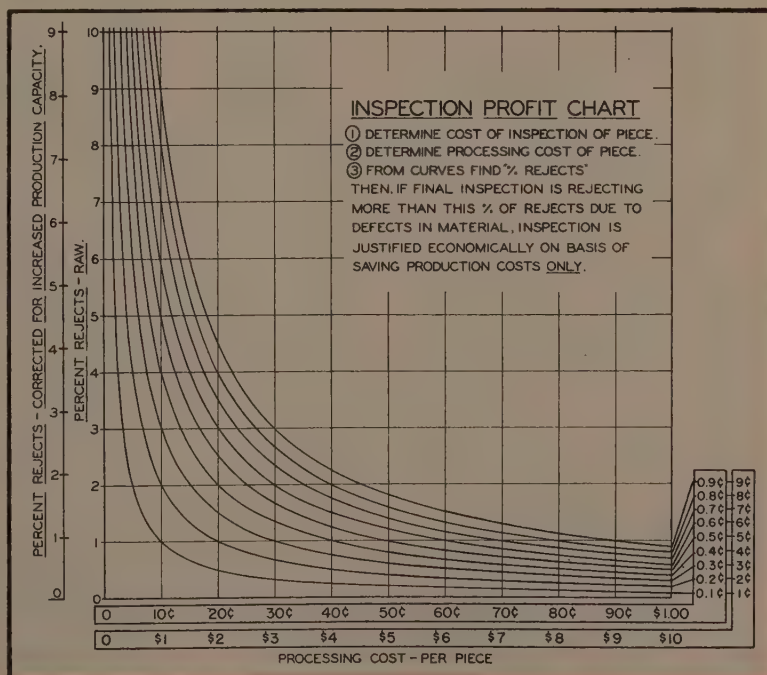
Paying Its Way—The economic justification of raw or semifinished part inspection is based upon either or both of the following reasons: 1. Saving the cost of processing defective material, only to be later rejected in final inspection. 2. Various advantages giving increased production if the final inspection scrap percentage is reduced to a minimum.

If inspection cost is only a cent or two per piece, and the cost of further processing is several dollars each, and the final rejection rate due to defects in the material or improper initial processing is several per cent, then it is obvious that preprocessing inspection is worthwhile.

Again, if this several per cent of scrap found in final inspection had been satisfactory for sale, then there are obvious dollar advantages in eliminating the scrap, and in-



When maintenance in the field is required, portable units are used on conveyors, mining equipment or other jobs like this one checking landing gear to avoid part failure in service.





Typical large jiggging type unit for inspecting special ordnance, aircraft and marine parts. Tank turret bearings are mounted on rollers and quickly inspected for crack-like defects that would cause turret failure in service

creasing the sales of the company and the profits on those additional sales.

Down to Cases—This relationship of inspection cost to processing cost to percentage of final rejects is illustrated in chart form.

For example, if inspection cost of a semifinished part is 1 cent each, and if \$1 is to be spent in finishing each piece, then we see that if 1 per cent of the final product is rejected the cost of earlier inspection would have been equal to the

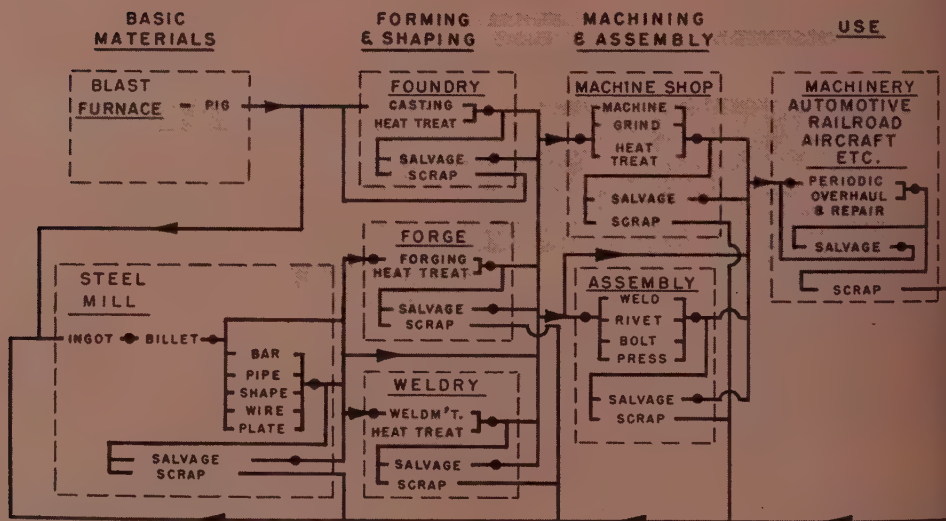
processing cost saved. If 100 parts were processed without previous inspection, then \$100 would have been spent on their processing and 1 per cent scrap of finished product would result in a loss of \$1 of processing cost.

Inspection before this pressing, at a cost of 1 cent per piece would have cost a total of \$1 or the same amount of the production cost saving. From this illustration it can be seen that if these curves are used, to fill a point by comparing the processing cost per piece with the percentage of finished part rejects which is being experienced. If it is found that that point lies above the inspection cost curve, the inspection operation performed before production will make money for the plant.

This illustrates the No. 1 saving listed above. However, it does not take into consideration the additional earnings for the company due to the corresponding increase of production capacity of the plant making saleable products, then final scrap percentage is eliminated by preproduction inspection.

The accompanying table illustrates this increase in production

MANUFACTURE AND USE OF TYPICAL METAL PRODUCTS



Flow sheet tracing path of pig iron and steel from its mill source through various steps in finishing. Large dots indicate some inspection locations

ing a loss of 5 per cent due
raw material:

A in the table shows the
of no raw material inspec-
d the rejection of 50 com-
pieces out of a quantity of
manufactured. The produc-
st of these parts was lost.
B these 50 defective parts
ejected before production
good parts were manufac-
nd sold.

Production—However, the
every production man is to
as many finished parts as
so can produce. If our hypo-
shop can produce the 1000
as shown in line A, then
od pieces should be passed
roduction. A sufficient ex-
therefore inspected prior to
ion in line C and the total
of the plant utilized ef-
nt. The maximum number of
arts can then be sold.

th the saving and produc-
st and the increase in the
of good parts produced
d are considered, then the
erage scale in the chart
le "Percentage Rejects Cor-
or Increased Production Ca-
ity is the scale which should
to determine the break-
nt or the percentage above
ht is economical to inspect
ra material.

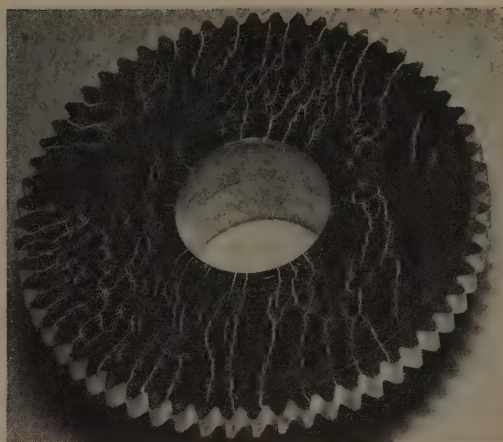
Point—Two other ques-
e important in determining
of economical inspection.
places in the production
ue can it be profitably em-
yed and why so.

of the locations at which
on is performed, and the
so why it is economical to
e listed in the table on the
ow page. These are the
and why's of inspection.

body Does It—Everyone
for some inspection on in-
material. The first where
e reasons for inspection at
t. The purchaser is always
d in maintaining a quality
check on his supplier and
s money by returning de-
material as soon as it is re-
ved. Sometimes the cost of in-
ect of an entire lot may be
epts as a charge by the sup-
here is an unusual number
e defective pieces.

er reason for inspecting in-
material is interesting, in

Cracks were found after
grinding, pointing to im-
proper grinding or in-
complete stress relief.
Sampling inspection
could be used until
cracked parts are no
longer produced



	No. Pcs. Raw Stock Inspected	No. Pcs. Rejected and Returned to Vendor	No. Pcs. Mfg'd.	No. Pcs. Rejected in Final Inspection and Scrapped	No. Good Pieces Sold
A—	1000	0	1000	50	950
B—	1000	50	950	0	950
C—	1053	53	1000	0	1000

evaluation of the supplier's ratio
of quality to cost. Some suppliers
have low cost and poor general
quality; others may have a high
cost and high quality, but prices
asked are often not a measure of
quality received.

In at least one large automotive
plant, incoming forgings from dif-
ferent suppliers are inspected 100
per cent with Magnaflux. This is
done primarily to save the cost of
processing defective forgings. But
the purchasing department has al-
so found the statistical results of
the inspection valuable.

In evaluating results they have
found that one supplier with the
lowest cost does not deliver best
quality, but delivers a fairly satis-
factory quality level. They have
found that their lowest net cost is
from this supplier even though
there is another whose general
quality is appreciably higher, but
whose prices are also higher. A
third supplier is even a little higher
in price, but his general quality
level is somewhat better. It is ob-
vious that with low cost 100 per
cent inspection in use, the supplier
with the best quality to cost ratio
will be the favored one and receive
a larger share of the business.

Another reason for inspecting
incoming material is to save cost
of processing defective material.
Generally there is not enough fac-
tual information obtained in the

shop by the cost accountant to
prove the savings possible by this
early inspection. The last reason
why is actually an inspection of
finished material as well as of in-
coming material.

Good Start—Second important
place after receiving, for in-
spection in production plants, is in
the inspection of parts that are
first run through a process. When-
ever a forging is made from new
dies, inspection of the first pieces
will prove the ability of the pro-
cess to produce a satisfactory prod-
uct.

If the process is not correct
(as for example in the case of forg-
ings) the dies may not be properly
designed or the bar may not be
properly heated or the operator
may be handling the part incor-
rectly; then those mistakes in the
process are quickly determined.

Early correction of mistakes in
the process can prevent a carload
of bad material. Inspection at this
point also insures the probability
that future parts made will be
good and saves the cost of proces-
sing bad parts further. For ex-
ample, the machining time on the
bad forgings is the actual and im-
portant saving resulting from this
process control inspection.

Maintain Quality—Third: Parts
are inspected throughout the pro-
duction run. We may get a pro-
cess under control, with correct forg-

ing dies, heating temperature, and operator technique mentioned in the forging shop example, but how do we know that that process will stay in control? Sampling inspection throughout a long production run insures that the process remains in control, and if it is not, it catches worn dies or incorrect operation and generally points the way toward its immediate correction.

Fourth: In this inspection during processing, there may be a noticeable increase in the percentage of defectives. When this is noticed, it is a signal to use inspection to check the output of each individual machine. There may be several forging hammers working on one job. In checking the output of the forging shop, the percentage of rejections goes up from under 1 to 10 or 15 per cent, something is out of control. The probability is that only one of the forging hammers is causing all the trouble and a spot check of the production from each hammer will quickly pin point the cause. This allows quick correction and minimum dollar loss.

Pinpointing Trouble—Fifth: Inspection between multiple operations performed in sequence is another trouble shooting device to locate the exact point of trouble. A part may be subjected to several grinding operations of which one is responsible for the epidemic of grinding cracks which show up in the spot check of the entire department.

A number of plants are employing portable inspection equipment to move around in large grinding departments and other departments where there are multiple operations. These inspectors test to find the early signs of trouble and become adept at finding them quickly. This inspection work is of no value however, unless the production men are fully informed of its purpose and work closely with the inspector. It seems to have worked out very well in plants where this in process inspection operation is actually under the control of the production department rather than the chief inspector. They then feel that they are controlling their own operations and are not being caught by some other department whenever they make a mistake.

USE OF NONDESTRUCTIVE TESTING

WHEN	WHY
1—Inspect incoming material	Return defectives or whole lot for credit and replacement Evaluation of supplier quality/cost ratio Save cost of processing defective material Insure quality of outgoing material (if not further processed)
2—Inspect parts first run	Prove ability of process to produce satisfactory product Insure future parts good and not waste processing cost
3—Inspect throughout production run	Insure process stays in control and not waste processing cost (excellent place for sampling)
4—Inspect output of individual machines	Pin point cause of defects found by No. 3
5—Inspect between multiple operations	Pin point cause of defects found by No. 3
6—Inspect finished parts	Keep customer good will See that other inspection is under control Personal pride of product
7—Inspect during and after salvage	Save maximum number of parts Determine cause of troubles
8—Inspect during service	Save cost of failures Salvage parts and prolong use Learn service problems and improve material and design

Touchy Subject—Sixth: Inspection of finished parts is the most common in industry. This inspection is the one which gives the entire inspection operation the greatest criticism. Production people and management often feel that inspection is purely devoted to the rejection of material which, except for some unfortunate occurrence, should have been shipped and billed and collected for. The inspector steps in and stops that profitable operation and therefore is considered to be a detriment to maximum production.

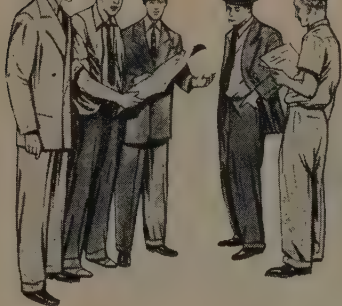
One of the most important contributions in eliminating this feeling can be performed by the final inspector. If he keeps the parts flowing through this department as rapidly as they are received, he can then report troubles to production before they have gone too far, corrections can be made, and the dollar savings will more than make up for the inspection cost. On that basis alone, the final inspector can

economically justify his existence.

Other reasons are shown in the table but are those to which, dollar sign is difficult to apply. How valuable is customer good will? We can say that it is all important in the maintenance of customer relations and therefore to the business of the company, but the production man argues that his product is generally acceptable and the inspector isn't doing very much to build good will in comparison with the careful work of the producer or the designer.

Save Where Possible—Seventh: In almost every production operation, pieces are produced which are not up to standard and if the value of the completed part is sufficient to justify the cost of repair it is salvaged. Inspection during the salvage operation and after its completion will result in a minimum of salvage cost and a maximum number of saleable parts saved from the scrap heap. A parallel advantage is obtained by using the

the men who operate them



OPEN HEARTH · SLAB HEATING



ROTARY HEARTH · SOAKING PITS



ALL TYPES OF ANNEALING



CAR BOTTOM · FORGING · OTHERS



they all say

RUST FURNACES

do a better job for every
metallurgical heating need

"Efficient . . . economical . . . automatic . . . all fuels . . . easy to operate . . . trouble free . . ." Furnace men attest the dependability of all types of Rust furnaces serving metal making plants throughout the world. Patented zone-fired installations account for more than one-third of the heating capacity (excluding soaking pits) of America's iron and steel industry. Also in general use are many of the Company's soaking pits. Rust builds both regenerative and recuperative type pits. Whatever your need there's a type of Rust Furnace (individually designed) to do your job.

RUST FURNACE COMPANY

Pioneers in

Furnace Design

RUST BUILDING



PITTSBURGH, PA.

E JOB
18
"PACKAGE" CONTRACT

e contract covers
ing . . . from blue-
start up. Rust as-
sibility for de-
acture, erection,
red to undertake
the work with its
including wiring.
his results in sub-
gs . . . One profit
pyramiding ones
where many subs
d.



Large auto plant saves on 1 to 2 per cent of all finishing by fluorescent inspection of connecting rods after forging eliminating those showing cracks

inspection as a means of determining the cause of the trouble. If the knowledge of the cause is fed back to the source of the raw material or the processing department involved, corrections can be made which will reduce these finished part losses to an absolute minimum.

Eighth: So far most of our attention has been devoted to the economics of inspection during the manufacturing process. Inspection during the service life of any machine is also the means of affecting a very large savings. The reduction in service failures is the aim of every maintenance department, whether in a factory working with machine tools, or in the transportation industries.

This is a qualitative approach—to be quantitative we must have facts and figures—dollar figures.

For example, such dollar analysis as the following is excellent appraisal of the value of any inspection operation.

Stitch in Time—In one operation during manufacture of finely finished heat treated and ground parts, the manufacturer rough machines bar stock and nondestructively tests it. Parts free from seams or other imperfections are then heat treated and ground. The heat treating and grinding operations cost \$1.50 per piece. Inspection costs 3 cents per piece.

During one period, 9607 pieces were inspected at a total cost of \$288.21. Of these, 937 pieces were found defective. The saving in

processing cost on these defective pieces was \$1405.50. Deducting the cost of inspection shows a net saving of \$1117.29. But how do we know that the potential loss of \$1.50 per piece would actually have occurred on these 937 rejected pieces?

Again, we are faced with that old problem of the inspection specification. We must be reasonably sure that that all rejected pieces were defective. If so, that \$1117.29 was saved. If not, then losses include the value of the pieces, the cost of the inspection and the profit which would have been made on them if they had been completed and sold.

This has been a brief appraisal of some of the economic factors entering into nondestructive testing. It may be of value to you in judging the effectiveness of the testing operations in your own plant. It is important to realize, as we do make these dollar evaluations through industry, how many important contributions to the profit of manufacturing plants have been made through nondestructive testing.

In summary, these facts seem to be most important:

First: The testing means is important, but outside of its cost per piece is entirely secondary as to whether it increases profits.

Second: We must accurately measure the amount of those increased profits by determining the costs of inspection and then proving that they are less than the

costs incurred without that inspection, otherwise the testing is not justified.

Third: We must study the service requirements of each part and determine a fair inspection specification for it based upon the quality standard needed.

Fourth: We should work toward the "ideal tolerance" in specifications, since that results in the greatest profit. Determine "where" and "why" so as to organize the most efficient inspection plan.

Fifth: If we are considering general inspection; what are the costs of service failures? If we are considering "in process" inspection, are the costs of each processing operation, and which of them are most apt to cause scrap?

Sixth: Enlist the help of the cost department so that our recommendations or decisions are based on dollar facts.

Lastly: It should be part of the inspector's job to accumulate data from his operations so that management will have a valid basis for evaluating the work of the nondestructive testing program. Inspection is not fundamentally the operation of judging parts against standards—it is fundamentally the weighing of a dollar-cost figure against a dollar-saved figure in order to show a profit.

Book Covers New Ion Exchanger

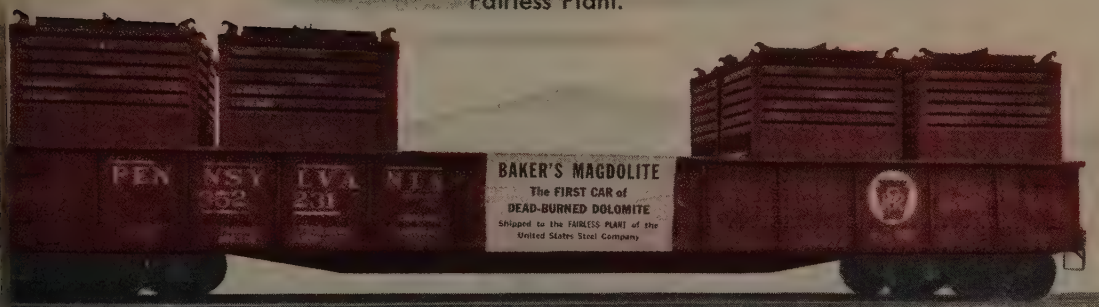
To help explain one of the newer roles that ion exchangers are playing in industry, Permutit Co., New York, has prepared a 28-page bulletin, *Demineralization Including Silica Removal by Ion Exchange*.

Due to its economical operating costs, demineralization and silica removal through the medium of ion exchange resins has come into use in all phases of industry. It is being used to advantage in such fields as power plants, chemicals, electroplating, process liquors, plastic products, nonferrous metals and for treatment of waste of many types.

Bulletin 3803, describes the chief applications, principles of operation, design features, advantages, recommendations and specifications of firm's demineralizing and silica removal apparatus and synthetic resins.

THE J. E. BAKER COMPANY DELIVERS FIRST CAR OF DEAD-BURNED DOLOMITE TO NEW FAIRLESS PLANT

The J. E. Baker Company, pioneer in the development of Dead-Burned Dolomite, captures another "first" in the Dolomite Industry by shipping the first car of this essential protective material to the United States Steel Company's Fairless Plant.



If you make Steel, you will get more uniform ingots, in greater numbers, at lower fuel costs, with less defective production material by using BAKER'S MAGDOLITE. The many years of "know how" of the J. E. Baker Company is their guarantee of Magdolite's superior chemical, physical, and mineralogical composition. That's why steel manufacturers gain more by using BAKER'S MAGDOLITE . . . the original Dead-Burned Dolomite!



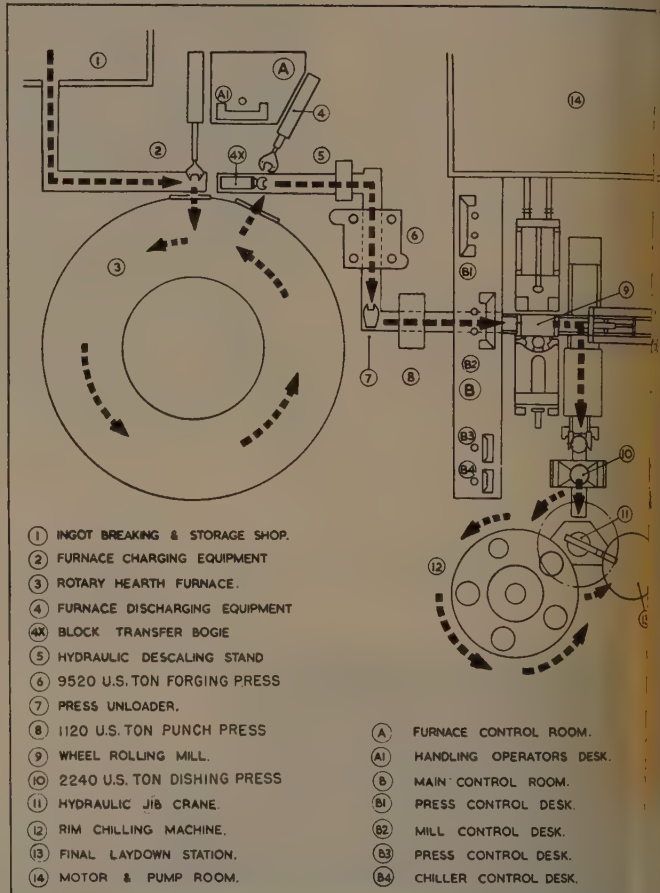
ALWAYS 5 WAYS BETTER—COMPOSITION •
PREPARATION • STRENGTH • ECONOMY • QUALITY

THE J. E. BAKER COMPANY
York, Pennsylvania

Plants: York, Billmeyer, Pennsylvania • Millersville, Ohio

Continuous Forge Rolls up Wheel Records

New English plant produces at a rate of 60 pieces per hour from a single-heat remote controlled process. Co-ordinated American and British design work pays off



Layout of the wheel forging plant at Trafford Park Steelworks shows arrangement of components that produce continuous one-a-minute output

RAILWAY WHEELS ranging from 24 to 50-inch diameter on treads are rolling off a new forge at a continuous rate of 60 pieces per hour. That's the report from Taylor Bros. & Co. Ltd., largest wheel producers in the British Empire, who recently initiated production from their new installation at Trafford Park Steelworks in Manchester, England.

Layout of the plant and design of the equipment was under the control of J. H. Ellis, Taylor's assistant chief engineer in charge of development, in conjunction with consulting engineer, E. Homer Kendall, Kendall Engineering Co., Alliance, O. Major plant items include a 69-foot diameter rotary hearth furnace, 9520-ton (U.S.) forging press, 1120-ton (U.S.) punch press, an electrically driven rolling mill, a 2240-ton (U.S.) dish-

ing press, and a fully automatic handling plant specially designed to insure fast, reliable production.

Start in Ingot Shop—Ingots are cut or broken from octagonal or duodecagonal stock in widths from 12 5/16 to 18 inches, depending on the size of the desired wheels. Gravity roller conveyor takes the blocks to the furnace charger in the main forge building.

Furnace charging machine consists of a cable driven carriage mounted on a fixed but adjustable bridge. Both the peel tongs gripping action and the peel lifting action are hydraulically motivated, and the rotation of the peel through an arc of 90 degrees is effected by means of cams and rollers operated by the action of hoisting or lowering the peel structure.

Automatic Charge Cycle—

Charging cycle commences when the furnace door is lifted. The tongs grip the block at a fixed distance from the base; peel structure is lifted and tongs rotate 90 degrees so that the axis of the block is made vertical; then the carriage moves to the extreme forward position, bringing the first block to the innermost position on the furnace hearth. Completion of forward travel actuates lowering of the block and tong release.

After the release stroke, the carriage returns to the loading position, tong head rests on the centering cam, and the cycle is ready to repeat itself on the second bloom. When the seventh outside bloom has been charged the furnace door is closed and the peel and tong head cooling spray are brought into action. Carriage travel control has provision for

"We cut fuel costs in half!"

CONTROL DATA

LINING	MAX. FUEL CONSUMPTION	CONTROL
Ordinary Firebrick	1,000,000 BTU/HR	100 to 150F Overshoot of Critical Pouring Temp.
B&W Insulating Firebrick	500,000 BTU/HR	No Overshoot of Critical Pouring Temp.



THE CHART ABOVE shows how B&W Insulating Firebrick slashed fuel bills by 50% and provided close temperature control when it was used in place of ordinary firebrick in a crucible type furnace melting magnesium. Similar savings were also made on identical units melting aluminum. • The reason for this superior performance is that lightweight B&W Insulating firebrick store and conduct less heat, thus pro-

vide faster heating up time and lower fuel consumption. These brick also respond rapidly to changes in heat input, assuring excellent temperature control.

The defense plant expansion program has created unprecedented demands for B&W Insulating Firebrick. It is, therefore, necessary to anticipate your requirements as far in advance as possible.

KAOCAST FLOOR TAKES PUNISHMENT

In the same furnace, a floor of B&W Kaocast, the 3000 degree refractory castable, withstood the spillage of crucibles . . . eliminated the need to renew the floor every time a crucible was replaced.



BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
REFRACORIES DIVISION

GENERAL OFFICES: 161 EAST 42ND ST., NEW YORK 17, N.Y.
WORKS: AUGUSTA, GA.

REFRACORIES PRODUCTS — B&W Allmul Firebrick • B&W 80 Firebrick • B&W Junior Firebrick • B&W Insulating Firebrick
Refractory Castables, Plastics and Mortars • **OTHER B&W PRODUCTS** — Stationary & Marine Boilers and Component Equipment...
 Coal Recovery Units . . . Seamless & Welded Tubes . . . Pulverizers . . . Fuel Burning Equipment . . . Pressure Vessels . . . Alloy Castings



HELPS THE NATION'S STEEL MILLS

... speed production with

PARALLOY

STEEL MILL ROLLS

PINCH ROLLS

COILER ROLLS

TENSION ROLLS



Other Products of Proven Performance

- ▶ HYDRAULIC SLAB AND BILLET PILERS
- ▶ STRIP AND SHEET OILING EQUIPMENT
- ▶ SHEET SCRUBBER AND CLEANING LINES
- ▶ HOT SAWS—ROCKING AND SLIDE TYPES
- ▶ HOT BEDS—COOLING BEDS—TRANSFERS
- ▶ BILLET EJECTORS—PINCH ROLL STANDS
- ▶ SLITTERS—SPECIAL SHEARS AND GAUGES
- ▶ TILTING TABLES—Traveling and Lifting Tables
- ▶ Continuous PICKLING Lines—ROLLER LEVELERS
- ▶ FURNACE Charging Equipment—Furnace Pushers
- ▶ Strip Steel COILERS and REELS—SCRAP BALLERS
- ▶ RAILROAD Spike Forming Machines—ROLL LATHES
- ▶ Sheet GALVANIZING Lines—Wire Patenting Frames
- ▶ Stretcher Levelers—Angle and Shape Straighteners
- ▶ Rolling Mill Tables—Gear and Individual Motor Types
- ▶ DUCTILE CASTINGS (80,000 PSI.)

*Machinery Built to Customer's
Design and Detail Drawings*

*Roll More Tons per Pass
No Scratching or Gallin*

500-600-BRINELL



Paralloy Rollers

The Youngstown Foundry & Machine Co.

OVER SIXTY YEARS OF SERVICE TO THE STEEL INDUSTRY

Youngstown, Ohio





is 9-foot rotary furnace, largest in England, has a capacity of 44.8 tons per hour. Billet discharge machine is in foreground, charge is at right

the radial spacing of the blocks on the furnace hearth.

the Furnace—Built by the Harland-Aldrich Engineering Co. Ltd., the furnace is the largest of its kind in the country. It has a rated heating capacity of 44.8 tons of steel per hour at a maximum temperature of 1280°C. It is 6 feet high over the outer buckstays and the hearth is 15 feet wide and has a mean diameter of 9 feet.

The furnace has four firing zones and is fitted with 39 steam atomized burners designed for heavy oil burning. Preheated air for combustion is obtained by utilizing the heat contained in the exhaust gases. Preheated air is used in the heating zones and atmospheric cold air in the preheating and soaking zones.

Rows of blocks are carried through the heating and soaking zones of the furnace by progressive indexing of the hearth at a rate corresponding to the output of the plant. At a production rate of 60 pieces per hour, for example, the heating time of the blocks is approximately 6¼ hours.

Discharging Machine—The heated blocks are removed from the furnace by a high bridge type discharging machine of 2240 pound capacity. Similar in basic design to a discharging machine, the travel of the carriage to the predeter-

mined billet position is controlled by a multiple cam type limit switch with vernier setting adjustment and "slow down" and "stop" rings for each billet position.

To commence the discharge of a row of blocks, the carriage travels to the outermost hearth position with peel lowered. At this point, the billet is gripped, hoisted and withdrawn from the furnace and aligned over an air-operated ram which lowers it 30 inches to the transfer buggy level. All of these operations are interlocked with the movements of the discharge carriage.

Then to the Descaler—Lowering of the elevator ram from the discharge level to the transfer car automatically closes the furnace door, and the control operator initiates the transfer cycle. The car is a tubular fabrication mounted on four wheels for traveling on the 67 foot track structure, through the descaling station to the 9520 ton forging press. The front bulkhead of the body carries the grips which hold the block while in transit.

Descaling is a fully automatic process; the transfer car turns the water on and off in its forward travel to the forging press. Twelve Harland-Aldrich No. 2 nozzles arranged above and below the surface of the block each have a capacity of 34 gallons per minute.

Dual Pressure Forging—Still in the automatic transfer cycle, the block leaves the descaler and stops when it is over the slabbing die of the forge. Release of the block from the car grips and return of the car to the furnace is now under the control of the forge press operator.

After slabbing until the required thickness is achieved, the block is gripped in the centering arms and transferred to the lower forging die. The upper sliding table is then moved to bring the top forging die under the center line of the press. Second forging is completed under intensified pressure, and then the lower sliding table is moved back to bring the completed forging over the stripping ram and the next block under the press crosshead.

Punched and Rolled—On being lifted from the bottom die by the stripping ram, the forging is gripped, lifted further and twisted through 90 degrees by a special machine to bring it directly over the live rollers which run through the punching press and on to the rolling mill. The press unloader is operated by the punch press driver who is seated alongside the 9520 ton press driver at a common control desk.

Punch press itself is of the up-stroking type with twin 26-inch diameter rams and with double acting pull back cylinders. Rated ca-



Transfer buggy takes the billet from furnace discharge to 9520-ton forge, passing through descaler on the way

PARKER-KALON®

The Original

SELF-TAPPING SCREWS

NOW...

Signed

For Your Protection

NON-COUNTERSUNK HEADS



12 IMPRESSED
TRIANGLES
UNDER HEAD

COUNTERSUNK HEADS



6 IMPRESSED
TRIANGLES
UNDER HEAD

HEXAGON HEADS



1 EMBOSSED
TRIANGLE
ON TOP OF HEAD

Signed Like the hall mark on fine silverware, this triangle mark now impressed on all P-K Self-tapping Screws signifies the maker's pride of craftsmanship. This "signature" will serve for your protection against substitution.

Certified Now, the P-K triangle mark will certify every screw that bears it as a genuine Parker-Kalon product, made by the *originators* of Self-tapping Screws. Now, you can be sure, when you see this mark, that you are using the *only* Self-tapping Screws made with the accumulated "know-how" of 40 years of enterprising leadership.

Guaranteed Now, identification goes beyond boxes or other containers and labels. The screw identifies itself, and when you see the P-K triangle mark you know it is the *guaranteed* screw, backed by the "Guarantee of Highest Quality" printed on every box. Look for the P-K triangle on the screws you buy and use. It's your one sure way to guard against job-slowng, parts-wasting screw failure . . . the way to make *planned* assembly savings *pay off*. Parker-Kalon Corporation, 200 Varick St., New York 14.





Billet is slabbed flat, then forged under 9520-ton impacts to rough-out wheel section for finished rolling



The press, of the upstroking type, punches the wheel boss with a force of 1120 tons. Edge rolling is next



Edge rolls reduce rim section area, and pressure rolls bear on the wheel's tread surface to form the flange

capacity is 1120 tons with a punch stroke of $9\frac{1}{2}$ inches at a speed of 3 feet per second. When the punch has penetrated the boss, limit switch stops the crosshead and the forging is lowered back on the live rollers for the trip to the rolling mill.

Loading the Mill—Loading mechanism for the rolling mill is mounted under the main control room, its main supporting frame being pivoted at the mill end and suspended at the other end from a curved track. A simple carriage activated by a hydraulic cylinder carries a self-centering grip mechanism which rotates so that the grips clear the wheel forging.

Travel stroke is arranged to take the bloom from the end of the roller table to the center line of the mill where it is deposited on forks attached to the roll carriages.

Rims Rolled First—Forged rim section is reduced in area in the mill and formed to the required shape by means of driven edging rolls which bear on the front and back faces and on the inside contours of the rim, and by the load on two pressure rolls which bear on the tread and form the flange. The mill, which is of Taylor-Kendall design, also has a driven main roll mounted in an adjustable carriage and two guide rolls mounted on a separate carriage but sliding on the same ways as the main carriage.

Hydraulic pistons for the guide roll carriages are attached to the main roll carriage to give movements relative to that carriage. Mounting arrangement of the guide rolls permits their retraction behind the main roll to facilitate loading and unloading of the mill. The arrangement adopted reduces the handling time at the mill and simplifies the handling equipment.

Dishing Press Next—On completion of the rolling, the wheel is transferred to a flat-topped car which takes the rolled wheel over the bottom die of the dishing press. A swinging arm restrains the wheel while the car rolls out from under it, and the wheel falls on to the die. Moving the lower sliding table of the press brings the die under the crosshead for the next forging operation.

This operation changes the web of the wheel from a flat disk to a

cone shape and sets the boss flanges. With a rated capacity of 2240 tons at an accumulator pressure of 2200 psi intensified to 6000 psi on a single ram, the press completes the dishing operation. While still on the press stool, the wheel is hot stamped with the cast number of the steel.

Jib Crane Unloader—Mounted over the dishing press table cylinder is a 1-ton hydraulic jib crane having a rigid, guided hoist in the form of a box section column sliding vertically in guides at the end of the jib arm. With its 14-foot diameter rotation, the crane lowers the dishing press stripping stool, the chiller loading station and the final laydown station. These three points are at 120-degree intervals in the swing.

Rotation of the crane is accomplished by a transmission unit driving through a planetary gearbox, the outer case of which is held by a friction brake to prevent damage in the event of pulling the jib arm.

Rim Chilling—Consisting of five stations mounted on an electrically driven turntable of 14-foot diameter, the rim chilling machine revolves at indexed speeds while automatic water spray devices operate at each station. At the center of each station is a set of loading forks under which is mounted a live roller center. At the point of intersection of the spray ring pitch line and the jib crane radius, a cam is arranged to lift the forks above the level of the live rollers in readiness to receive the wheel from the jib crane.

With the wheel deposited on the forks the main turntable is indexed $1/5$ th of a revolution, lowering the forks and leaving the wheel on the rotating rollers. Water spray at that station is automatically turned on together with the spray timing device. As the first station is carried away from the loading point, the fifth station goes into that position and the wheel is lifted from the live rolls by forks for transfer by the jib crane to the laydown position.

Final Laydown—Three stacking pegs mounted on a simple turntable comprise the laydown. The pegs, designed to receive five completed wheels, have their upper ends shaped to suit a set of automatic

TODAY...

the quality of mercy is strained!



● Just a bottle... and a tube...
with blood plasma flowing slowly
into the veins of a wounded man on the
battle field... to save that man from
almost certain death. And on that
indispensable life line... a tiny blood plasma
strainer made of Reynolds Wire Cloth. Small
in size; big in performance. Not quite so
dramatic, or so vital, are the many other *for-defense*
uses of Reynolds Wire Cloth—in the production
of high octane aviation gasoline... in making
gunpowder... in radar reflective tow targets... and,
of course, the tremendous number of
Reynolds Wire Cloth applications in Agriculture,
in Aviation, and the Automotive Industry—so
essential in sustaining the defense and civilian
economies of our nation in peacetime or in
wartime. Reynolds combines 50 years'
wire-weaving experience with modern facilities.
Consult Reynolds engineers. No obligation.

REYNOLDS
protects performance

REYNOLDS WIRE DIVISION, NATIONAL-STANDARD CO., DIXON, ILLINOIS

Districts of National-Standard Co.

ATHERIA STEEL...Clifton, N. J. Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL STANDARD...Niles, Mich. Tire Wire, Fabricated Brails and Taps
WAGNER LITHO MACHINERY...Jersey City, N. J. Metal Densifying Equipment
WORCESTER WIRE WORKS...Worcester, Mass. Round and Shaped Steel Wire, Small Sizes



THE ACTUAL IS LIMITED:

THE POSSIBLE IS IMMENSE

NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

© LE Co. 1953

WELDED STEEL DESIGN SIMPLIFIES PRODUCTION ... CUTS COST ON MACHINE TOOLS

by William B. Boice

Boice-Crane Company, Toledo, Ohio

COSTLY machining operations like milling castings can be eliminated by designing for welded steel construction. On our jointer, for example, the top surface is now finish ground to close tolerance in one setup after welded assembly. Wherever machining is required, with steel construction precision tolerances are often held in one cut as compared to rough and finish cuts required on most castings.

Since steel is twice as rigid as gray iron, less material is needed to resist deflection under load. If made from castings, our jointer would weigh twice as much and still be subject to inaccuracies from deflection and warpage no longer experienced in the present welded steel construction.

With less material, less machining and fitting involved, shop costs are reduced. Furthermore, the modern appearance achieved with the welded design has greatly improved selling appeal.

Fig. 3. Welded steel design of 8" jointer is stronger, more rigid, yet weighs half as much and costs less than cast construction. Courtesy, Boice-Crane Co.



Fig. 4. Efficient girder-like structure forms rugged frame for table. Top is welded to frame with intermittent welds and finish ground in one setting.



WELDED DESIGN ALWAYS SAVES STEEL AND LOWERS COST



Fig. 1. Original construction of pedestal grinder required costly milling and drilling using heavy machine tool equipment. Casting had to be filled and painted to obtain quality finish for sales appeal.

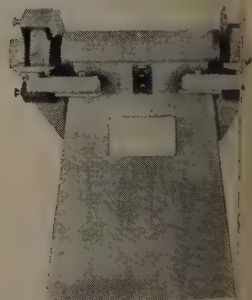


Fig. 2. Present welded steel design. Quality of product and appearance improved to enhance sales appeal. Stability increased by lowering motor into pedestal base. Weight is cut 35% yet product more rigid and costs 12% less to produce. Courtesy, The Bridgeport Sargent & Wheel Co., Inc., Bridgeport, Conn.

MORE PROOF

Machine Design Sheets available on request. Designers and Engineers write on your letterhead to Dept. 1601,

THE LINCOLN ELECTRIC COMPANY
CLEVELAND 17, OHIO

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT



hub offset and plate contour
med in this dishing press, a
n, single ram type machine

gitted to the overhead crane.
s facilitates easy removal of
pleted stacks of wheels to
ling beds.

hroughout the entire process—
urnace to cooling beds—no
wer is needed on the work
rself. Complete control is
ined from a raised, glassed-
centrally located. Cycling
individual operations is au-
a, manual control being nec-
only at the major process-
pts.

Generated for Magnet Use

A e-a-month information kit
ng permanent magnet ap-
a ideas for industry is an-
l by Carboly Department,
Electric Co., Detroit. The
it consists of a permanent
with six application ideas.
scribed on a separate loose-
e. Each month, the depart-
ans to issue a new magnet
n sheet to be distributed
ically to those who request
e b c kit.

First six ideas presented are use
mets on conveyors to trans-
port parts; sheet steel sep-
arator floor sweepers to pick up
objects; tool racks; and
bles for cutting sheet metal.
Each sheet contains complete
information and diagrams
giving the particular applica-
on described.

Molten Metal Pump Built

EMPTYING furnaces of molten metal at Wire Equipment Mfg. Co. Inc., Trenton, N. J., has been simplified with the use of an air-driven pump immersed directly into the metal. Temperatures are so hot that lubrication for the motor is supplied by a lubricator located 20 feet away.

Built by Gast Mfg. Corp., Benton Harbor, Mich., the pump is driven by a 3-hp rotary-vane motor and has been used to pump molten aluminum at 1400° F. Molten metal is discharged through a 2-inch pipe riser, and the 8400 pounds of aluminum in the furnace are pumped out in about 4 minutes.

Pump Glows Red — Although pumping time is short, limited mold capacity requires intermittent pumping over a period of 6 hours. As the partially-drained furnace could not supply its own heat, a No. 2 oil burner was directed on the surface of the liquid. Burner flame is often directed on the casting that is supporting the pump motor, causing it to reach cherry red heat.

Only cooling possible for the motor was the air passing through it about 1 per cent of the time the pump was in the molten metal. Inspection after the test showed motor vanes unharmed, although there was some carbonization of the lubricant in the bearings.

Interesting feature of the construction for this application is the pump impeller bearing which has 1/8-inch clearance. Before immersing pump assembly in the metal, it is preheated over the furnace.

Atomic Power Problems Aired

Control problems involved in the possible use of atomic energy to generate electricity were outlined in a paper titled "Nuclear Power Plant Control Considerations", presented during a symposium on nuclear instrumentation at the winter general meeting of the American Institute of Electrical Engineers in New York.

Use of a nuclear reactor as a component in such a system imposes many unusual design problems. But basic development procedure for designing such a con-

trol system is the same as for any other type of power plant, said M. A. Shultz, Westinghouse Atomic Power Division, Pittsburgh.

When a reactor is used to provide heat energy to motivate a turbine system for generation of electricity, several problems must be solved. Among them Mr. Shultz listed safety of operating personnel, disposal of excess heat and nuclear radiation, start-up and shut-down timing and means for using the heat that is generated by nuclear fission.

"... It is apparent that the operational requirements of the plant determine the control system in the same manner as in a conventional plant", he concluded.

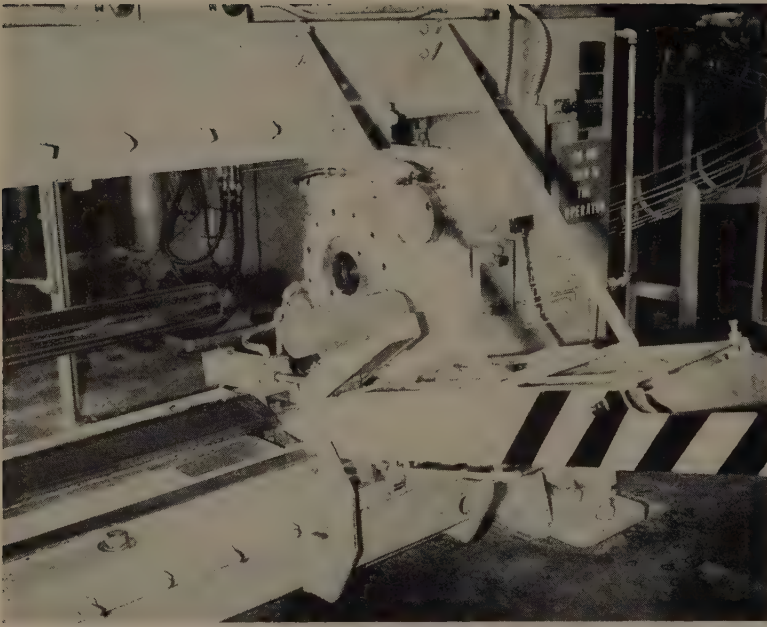
Hot Screen Cuts Clogging

ELECTRICALLY heated screen cloth prevents clogging or "blinding" when wet materials are screened, according to Hewitt-Robins Inc., Stamford, Conn., who recently announced the new development. With the system, worn cloth can be replaced as easily as before addition of heating equipment.

Current is carried to the screen by short insulated cables attached to copper bars which are located under the screen cloth and make direct contact with it. This arrangement eliminates power losses encountered in some systems where current is passed through steel or copper skirtboards located along side the screen and above the screen cloth.

How It Works — The heated screen cloth dries out and bakes wet coal, clay, stone or other material as it tends to build up on the screen cloth wires. This causes it to flake off instead of blinding the openings. The company claims faster processing of wet materials, efficient sizing and reduced screen cloth wear as advantages over manual cleaning methods.

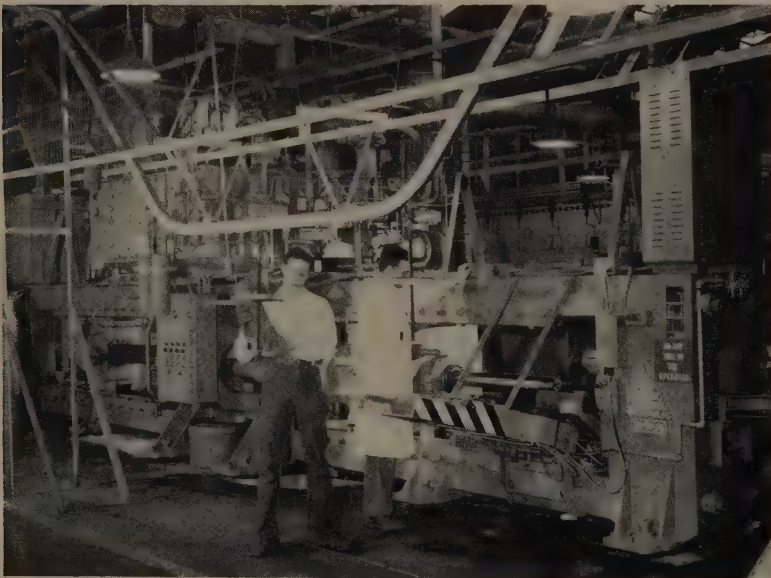
Current going into the screen cloth is regulated by a Hannon variable step screen cloth heater. Voltages range between 5 and 15 and amperes from 1000 to 4000. Current distribution bars are shielded from abrasive action of material being screened, thus preventing weak or broken contacts due to corrosion of steel or copper parts.



On this draw the feeding device loads parts from a chute. Parts are lifted into position by pneumatic paws. Closeup shows punch and the ring die

Press Works in Two Directions

Utilizing a horizontal ram this new press works at both ends of the stroke. Elimination of the idle return is one advantage. Easy installation is another



Double-end press produces at both ends of the horizontal stroke. Press is only 10 feet high and needs no foundation pit. This is the fourth draw

MANUFACTURERS of cartridge cases have the double problem of making cases in volume quantities while meeting rigid ordnance specifications.

Rheem Mfg. Co., in its New Orleans plant, undertook the job of producing 90 mm cartridge cases. They wanted to set up a line ending minimum handling and human effort. To help in the creation of this line they called in Clearing Machine Corp., Chicago.

Double Stroke—Clearing Machine engineers proposed a new kind of hydraulic press for the cupping and drawing operations. These presses have certain inherent advantages. A press drawing a shell to a final length of 24 inches requires an unusually long stroke. Long return stroke necessarily slows down the total stroke time.

One way of reducing this lost time, Clearing reasoned, is to reduce at both ends of the stroke. The double-end press does this and has a number of other advantages which fitted in with Rheem's future plans.

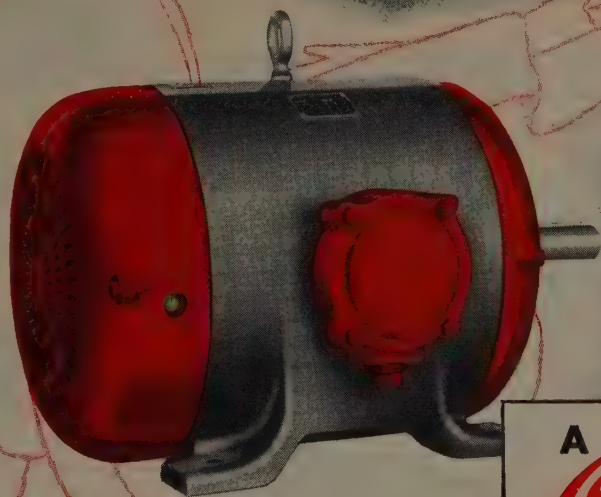
Space Saver—Lower first cost is one of the benefits of this type of equipment. The press requires less manufacturing space than two conventional presses, especially where ceiling height is a factor. It's just 10 feet high. Conveyorized material handling equipment is easily adapted to them.

Installation is a relatively simple matter. No foundation pit is required. This was especially important to Rheem since soil conditions at their New Orleans plant are unstable.

Maintenance problems are also simplified. The low silhouette of the press makes operating mechanism readily accessible. Power consumption is reduced since it has only half the motor capacity of two separate presses.

Production Plan—Starting with a disk of 1030 steel 0.69-inch thick and 8 7/8-inch in diameter, a series of press and auxiliary operations converts these disks into a finished shell case that measures 24 inches in length.

First operation performed on the double-end presses is cupping. Here the part is forced through a carbide insert draw ring which reduces the wall thickness about 4 per



A
Century
MOTOR
With
Gas Mask
PROTECTION
Underwriters Approved
EXPLOSION
PROOF MOTORS

Take a look at these **Century**
Explosion Proof Motor features:

- Vital motor parts protected—sealed into inner frame.
- Motor can be reversed without changing direction of the fan—fan runs in either direction.
- Uniform ventilation surrounding outside of inner frame.
- Smooth, straight-through ventilating passages.
- Winding electrically insulated 6 different ways.
- Unusually free from vibration.
- Ball bearing housing keeps grease in—dirt out—lubricated for several years' normal service, with grease plugs for additional lubrication, if necessary.
- Easy-to-remove fan guard is held securely in place with two screws.
- Smooth exterior surface is easy to clean.
- Cast iron frame with integrally cast feet resists rust and corrosion—even when mounted in places where processed materials may contact the feet.
- Rugged construction gives generous safety factor for rough handling.

Your property and employees are protected, because this Century Explosion Proof motor is totally enclosed—sealed to prevent a motor spark from causing an explosion.

Class I, groups C and D are used in atmospheres containing flammable gases or vapors: Ethyl ether vapors, gasoline, petroleum, naphtha, alcohols, acetone, lacquer solvent vapors and natural gas.

Class II, groups E, F and G are used in atmospheres containing combustible dusts: Metal dust, carbon black, coal or coke dust and grain dusts.

Naturally, corrosive or abrasive materials in the air are also sealed out of the vital parts.

For your protection, specify Century motors on new equipment or for replacement. Your nearby Century Distributor will be glad to give you full information on the complete line of Century motors—from $\frac{1}{8}$ to 400 horsepower. We are limited in some sizes of the Explosion Proof motor.



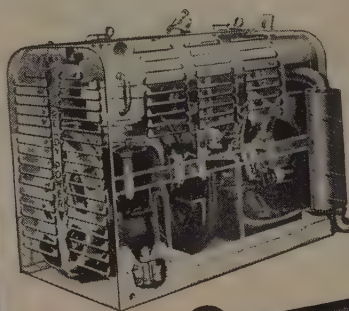
CENTURY ELECTRIC COMPANY

1806 Pine Street

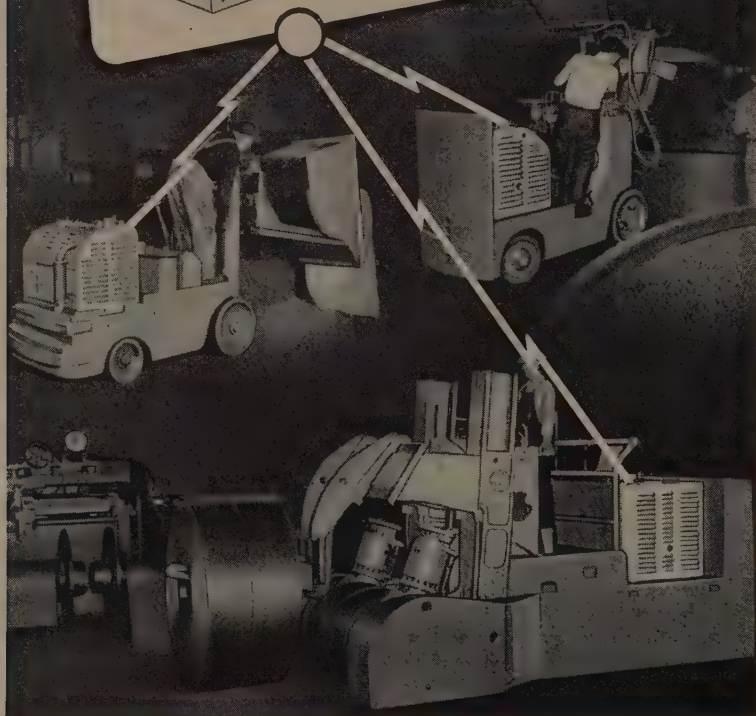
• St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

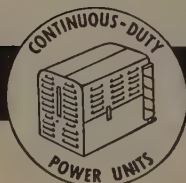
Ready-Power Adds 'GUTS' to Electric Truck Performance



THIS IS THE ONLY
INTERCHANGEABLE
CONTINUOUS-DUTY
POWER AVAILABLE
FOR ELECTRIC TRUCKS
... D. C. generator,
gas or Diesel engine



Only Ready-Power Drive gives electric trucks the stamina that means *full power all the time!* With no limit to hours of service, Ready-Power-equipped trucks handle the toughest jobs at lowest costs per ton-mile. Gas-electric and Diesel-electric models are available for ALL sizes of electric trucks.



Remember...Your Truck Is No Better Than Its Power!

The READY-POWER Co.

3824 Grand River Ave., Detroit 8, Michigan

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks



Nearly completed case is positioned in the tapering dies. This operation takes 90 tons. Force on each ell of the press can be varied independently

cent. Approximately 265 tons are required for this operation.

More Presses—On the opposite end of the same press, parts go through the first draw operation, reducing the wall thickness another 45 per cent. Double end presses perform three more drawing operations and a tapering operation to bring the case to its finished shape.

Base of the cartridge case is formed in two heading operations. These operations are accomplished in 2000-ton hydraulic presses. The presses are twins so they may be interchanged should either of them be out of service for die changes.

Preheading and heading presses are equipped with rotating dials on the bed. The dials swing 19 degrees allowing the operator to load the drawn part on the heading post at the front of the press. Limit switches on these presses make certain the case is properly positioned on the heading post before the press will operate.

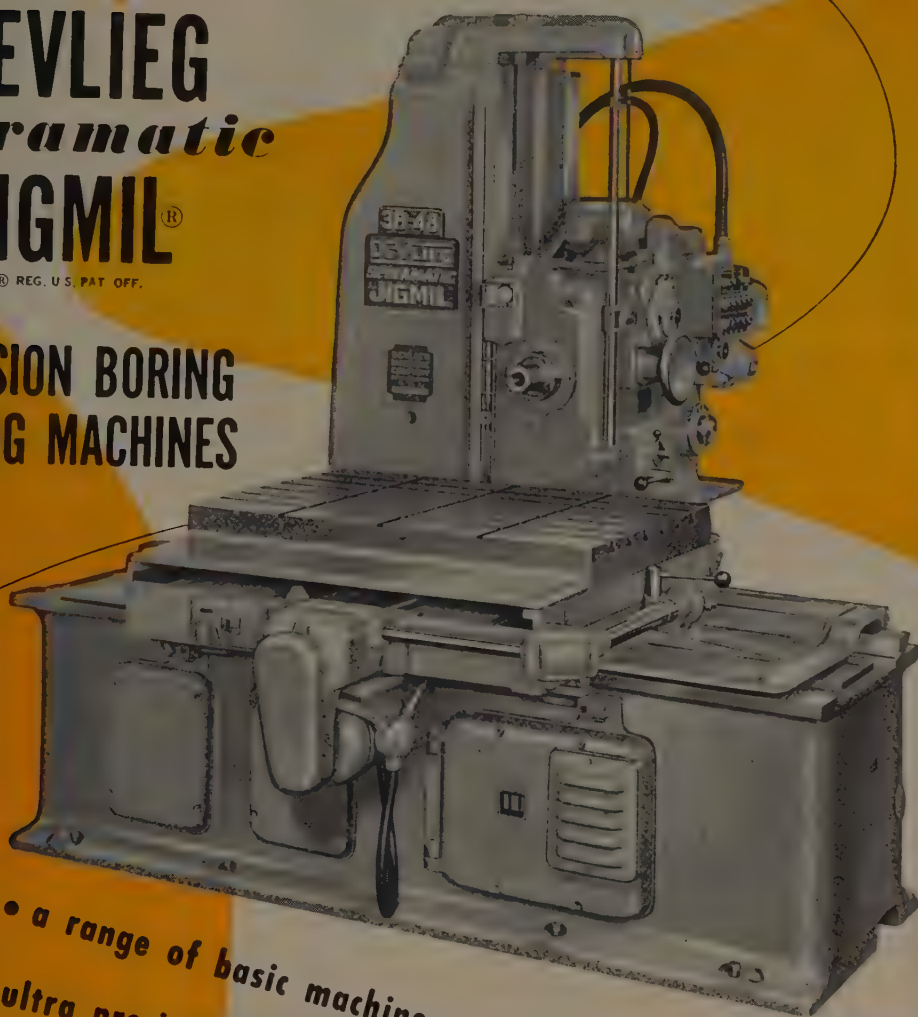
Cloth Dust Collection Reviewed

Dust collection in the mining and metallurgical industries is the subject of a bulletin published by American Wheelabrator & Equipment Corp., Mishawaka, Ind. Case histories given in this 8-page brochure show how the company's Dustube cloth-tube-type collectors are used in filtering gases from

DEVLIEG *Spiramatic* JIGMIL®

® REG. U.S. PAT. OFF.

PRECISION BORING MILLING MACHINES



• a range of basic machines
for ultra precision boring and milling

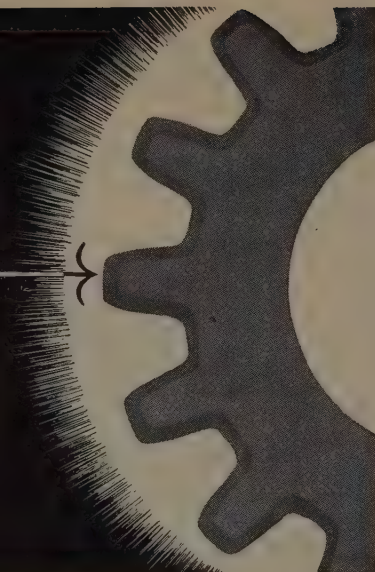
for the latest
developments in
precision boring
equipment . . . consult—

DEVLIEG OF DETROIT

DEVLIEG MACHINE COMPANY • 450 FAIR AVE., FERNDALE, DETROIT 20, MICH.

The
Right
Hardness

in the
Right
Places



PITTSBURGH GEAR Process

Guarantees Longer Life

Only PITTSBURGH **Armored Gears** are made according to the exclusive PITTSBURGH formula which covers a proven combination of metal, machining, AND heat-treating. It is not enough to use tool steel, which often will not stand shock loads. PITTSBURGH selects the best metal for the particular gear body, then machines it, and heat-treats the wearing surfaces to give ultimate life.

This process gives you gears that have tough, ductile cores, and teeth that wear almost interminably. PITTSBURGH **Armored Gears** are guaranteed to give five times the life of untreated gears, one to one and one-half times the life of oil-treated gears, and equal or longer life than any other gear in identical service. You can identify them by their "Pittsburgh Purple" corrosion preventive coating.

You'll never know how good PITTSBURGH **Armored Gears** are until you try them. Send us your specifications or give us details of service requirements so that we can make recommendations.



Trademark
Registered
U. S. Patent Office

SPUR

MITRE

HELICAL

HERRINGBONE

WORM GEARS

REDUCERS

CRANE WHEELS



PITTSBURGH GEAR

COMPANY

27th & Smallman Streets
Pittsburgh 22, Pa.
Phone: ATLantic 1-9950

subsidiary of BRAD FOOTE GEAR WORKS, INC. • CICERO 50, ILLINOIS

such equipment as lead blast furnaces, sintering machines and cupolas melting slag.

Other applications presented include dust control in dross imping, coal cleaning and asbestos processing. Role of synthetic fabrics in filtration of hot or corrosive gases is also discussed.

Air Force Nomenclature Index

Index of approved item names section of Federal Guides to Standard Nomenclature for use on drawings and other documents prepared by contractors for the Air Force are now available, in limited quantities, at Air Materiel Command headquarters.

This guide provides contractors with consistent, uniform nomenclature for identification of all items purchased by the Defense Department. Previously, items were purchased and identified separately, under various nomenclature by each arm of the service.

Air Force contractors may receive the alphabetic Part I of the guide on request to the Cataloging and Packaging Division, Directorate of Supply and Services, Headquarters, Air Materiel Command, attention MCSISD.

Pickling Reference Published

Revised edition of its standard reference work on pickling, Efficient Pickling with Rodine, has been published by American Chemical Paint Co., Ambler, Pa.

The 80-page reference breaks down scale removal into five sections, covering Pickling and other Acid Uses; Pickling Processes; Rodine; Pickling Processes with Rodine; and Suggested Practices for Pickling Typical Products. Copies are available free of charge.

Castings Handbook Revised

Demand for the "Steel Castings Handbook," manual of the steel castings industry, has necessitated a second printing of the completely revised volume compile and published by Steel Foundry Society of America.

The handbook can be obtained from society headquarters, 920 Midland Bldg., Cleveland 15. Price of the standard edition is \$4.00; student copies are available at \$1.50 each.

BULLARD**MANUFACTURERS OF MACHINE TOOLS**

Panama Canal, Pedro Miguel Locks

United Press-Acme Photo

The Invisible Background of Industrial Progress

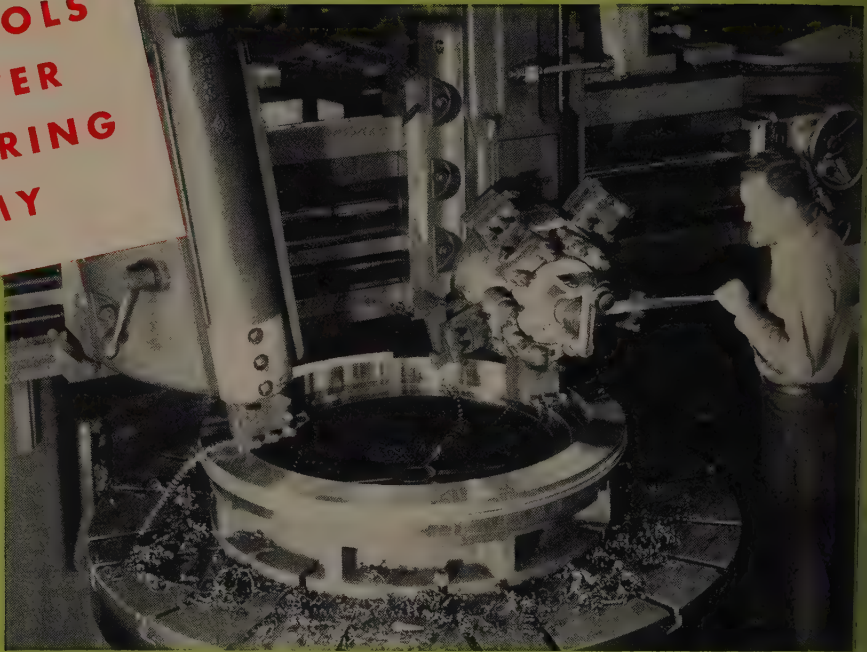
Panama Canal, a United States acquisition about 1904, was officially opened July 12, 1920. The total cost to our country was \$375,000,000. Earth removed was 239,000,000 yards. However, American ingenuity, incentive and industrial progress through Machine Tools and the practical use of mechanical equipment — such as: plows, derricks, stonecutters, drills, shovels, steamboats, dredges, pile drivers, tracklayers, locomotives, steam shovels and other products of mechanical ingenuity realized a 400-year-old dream of a passage between North and South America. In 1949 almost 10,000,000 tons of shipping passed through the Canal from east to west, and from west to east approximately 15,500,000 tons. Statistics show the distance saved between New York and San Francisco is nearly 8,000 miles with only a matter of six to eight hours for a vessel to make the passage. Ships of 1,000 feet in length are accommodated in any of the five locks in the Canal.

★ Today because of *Modern Machine Tools* and mechanical equipment such projects consume considerably less time than "The Big Ditch".

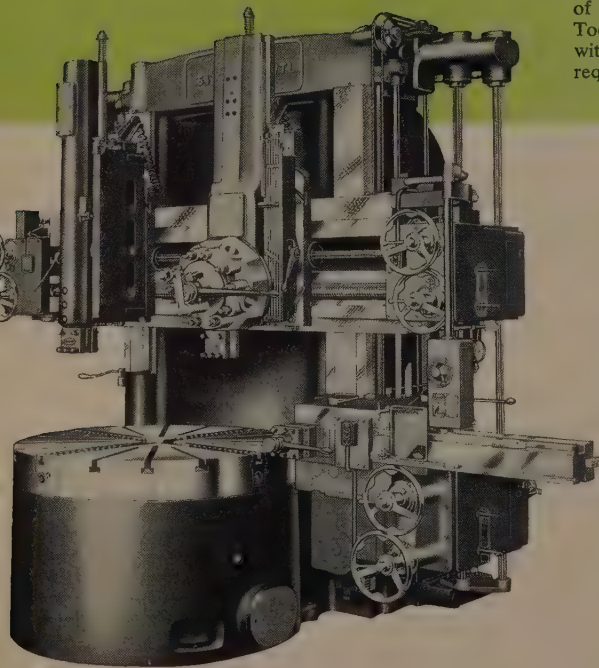
★ For greater manufacturing economy REFER to next page.

THE BULLARD COMPANY
BRIDGEPORT 2, CONNECTICUT

**BULLARD
MACHINE TOOLS
FOR GREATER
MANUFACTURING
ECONOMY**



In the background of "Industrial Progress" lies the development of the name Vertical Turret Lathe. This name, an offshoot from the old single-head boring machine, was established in 1909 by the inception of a vertical boring mill having a sidehead, which Bullard pioneered. Today the modern conception is the Cut Master Vertical Turret Lathe with its design and engineering in keeping with manufacturing requirements.



The Cut Master is exactly, in all respects, what its name implies — accurate and efficiently productive. Truly a machine for manufacturing economy. These machines are widely reputed to be of great adaptability on almost all classes of work. Bullard Machines of this type, because of their wide range of sizes, are ideally suited for installation aboard many of the United States ships for defense for their maintenance requirements. Furthermore, Bullard Machines are used in the industries which manufacture for the large construction projects where the accuracy of the finished product determines the reliability for the functions required. Original machining accuracy of work assures reliability with minimum maintenance costs over long periods. Bullard Cut Master Vertical Turret Lathes give assurance to your customer that the product bearing your name is of the highest quality.



Time saved is money earned. Write now for information.

THE BULLARD COMPANY BRIDGEPORT 2, CONNECTICUT

less Sizes Grow

erior Tube offers light wall
to 2-1/16-inch OD in Monel
stainless

LESS light wall tubing is
g into size ranges once the
ive domain of welded grades.
or Tube Co., Norristown, Pa.,
ring outside diameters up to
ches. Previous maximum size
l by specialty tube mills was
h OD.

nd toward demanding higher
res, often exceeding limits
lded tubing, without sacrific-
eight is expected to extend
ations for large diameter
wall seamless. Greatest pres-

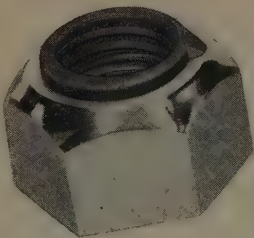


SEAMLESS TUBE REDUCING
arger sizes become available

is for instrument bellows,
metal hose and low-pres-
at exchanger tubes.
rior furnishes the specialty
el and in 304, 321 and 347
s, with pickled or standard
inish in three tempers. Wall
ss tolerance is 10 per cent
izes. Length ranges from 5
et.

D wing Preparation — Cold
y the light wall tubing can
pecial care. Tube stock gets
ce inspection, tests to de-
inside diameter condition,
egre of anneal and hardness, plus
l analysis and microscopic
on. Stock is first carried to
ducing machine table by
rane for reduction by Rock-

A LOCKNUT that will hold here will hold any place



1500 blows a minute in lime-
stone ballast is tough punish-
ment. Security Locknuts are used
on the Racine Tie Tamper
made by the Racine Hydraulic
& Machinery, Inc. of Racine,
Wis. to hold the bushing that
carries the tamping tool.

A Locknut that will hold
here, under the pressure of the
vibration encountered in heavy
railroad work, will hold any
place. There is no other locknut or
fastener like Security and no other
locknut will do what a Security will
do.

Security Locknuts are self-locking
in any position. They do not re-
quire bolt tension to keep them
tight. They stay where you wrench
them, even in the face of vibration
that destroys the bolt. A Security Nut can
be removed and replaced any number of
times without materially loosing the torque
or locking power and without injury to the
bolt. This means easy maintenance for your
customer's customer. Installation is fast—
nothing to line up—no extra parts—nothing
to shear!

Authoritative tests have proved conclu-
sively the gripping power of Security Lock-
nuts. We would like to have you see them.
Made in 3/8 in. to 3 in. bolt sizes. Fill in
the coupon for more details.



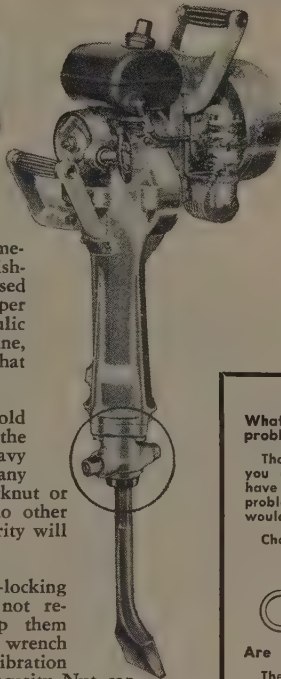
THE SECURITY CAPLOC

Here is a cap nut that
locks with the grip of the
Security Locknut. It pro-
vides locking power at a cost
no more than an ordinary
acorn nut. Here is the an-
swer to those locations where
you want to be sure that
protection for bolt ends stays
there.



THE SECURITY STUDLOC

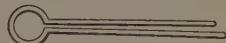
The Security Studloc can
be adapted to provide a
positive lock in counterbores
and housings or it can be
keyed into work to serve as a
simple lock nut. An elliptical,
heat treated, spring retainer
of highest quality spring steel
forced into "round" on in-
stallation grips the bolt with
a force that defies vibration.



What is your toughest fastener problem?

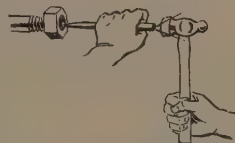
That is the one we want to help
you on. Security fastener experts
have a long range of experience in
problems where other fasteners
would not hold.

Challenge us to make it stick!



Are you Cotter conscious?

There may be places where cot-
ters are the only solution but cot-
ters are expensive to install.
Security Locknuts eliminate the ad-
justment of expensive castellated
nuts, drilling and weakening bolts
and setting cotters. You install
Security just like an ordinary nut.



Why destroy the bolt?

Battered up bolt ends mean
tough maintenance for your cus-
tomer. Why peen bolt ends when
you can lock the part in place in
half the time and still permit easy
removal.

One nut does it!

With Security it takes only one
nut to hold the job. Just put it on
like an ordinary nut. The Security
retainer holds it in place and the
nut body takes the load. Ask for
more complete details. Let us tell
you how it's made.



SECURITY LOCKNUT CORPORATION
North Ave. and 15th Ave., Melrose Park, Ill.

Please send me without obligation:

- ☐ One of your Thread Tolerance Charts.
- ☐ We have a fastener problem and would like to know more about Security Locknuts.

Company Name
Address
Town Zone State
Signed

Rite process. A tapered mandrel is inserted and tube wall compressed by rocking between two half-round hardened tool steel dies in which a tapered groove forces wall to thin out.

Because first reduction work-hardens material, tubes are carried in ½-ton bundles to electric element furnace where tubing is annealed in cracked ammonia gas atmosphere at 1925 to 2050° F. Water cooling and the pickling process follow.

Cut and Dried — Annealed tube

moves to swaging machine, then to pickling house where green oxide is removed by immersion in 7 per cent solution of hydrofluoric acid. Two water baths, flush and forced hot air drying follow.

After drawing, tube is run through Mackintosh - Hemphill straighteners, flare-tested, checked for surface imperfections and tolerances, and hydrostatically checked for leaks and pressure. In addition, samples are taken for metallurgical and chemical lab tests. Abrasive wheels cut tube into final lengths.

Gaging Soil Corrosion Rate

Rate of weight loss of a piece of steel corroding normally in soil can be measured electrically without actually weighing the metal.

This is a conclusion reached by a laboratory study conducted by the National Bureau of Standards, lending further evidence that the electrochemical theory of corrosion applies generally to soils. Although the NBS measurements were restricted to the laboratory, their success suggests the possibility of practical applications, such as determining corrosion rate of a tank or other underground structure without need for visual inspection.

Although ferrous metals corrode at a constant rate in some soils, in other areas the corrosion gradually slows and in time may virtually cease. Actually weighing or inspecting an object that has been buried for years will indicate metal corrosion. But it will not show how rapidly it has been corroding just prior to inspection. This, if the electrical method proves practical for field as well as laboratory determinations, it will have the advantage of measuring the present corrosion rate — likely to be of greater practical interest than the corrosion history.

Low-Temp Weld Metals Review

Evaluation of the properties of weld metals for low-temperature service is featured in the winter 1953 issue of the *Alco Products Review*, published by American Locomotive Co., Schenectady, N. Y.

Paper discusses materials used in the fabrication of pressure vessels for low-temperature service, investigation of ferritic electrodes to determine properties of deposited weld metals for low-temperature service, and the Charpy notched-bar properties of weld metals at various temperature levels.

AMA Plans Market Talks

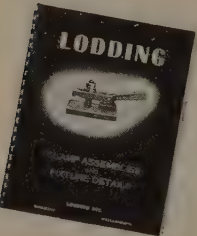
Results of a nationwide consumer market survey completed by U. S. Department of Commerce and Commerce Committee for Economic Development will be presented to executives attending American Management Association's national market conference. Sessions are scheduled for



JIG and FIXTURE COMPONENT PARTS

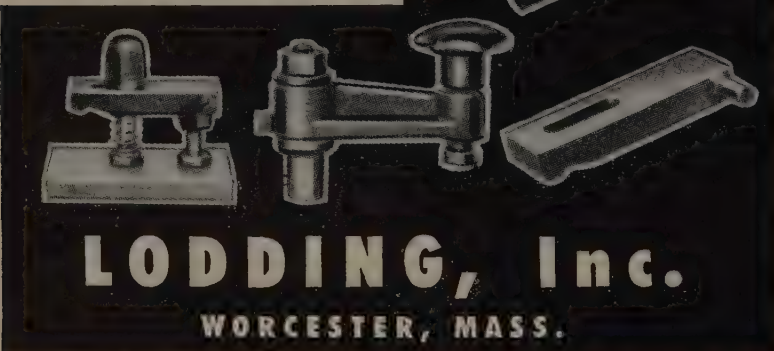
Eliminate the designing and making of clamps and other fixture parts. LODDING makes them for you.

LARGE FACTORY AND DISTRIBUTOR STOCKS. ASSURE QUICK DELIVERIES.



Write for CATALOG

showing 365 items that can save you time and money.



LODDING, Inc.
WORCESTER, MASS.



Heat Prover
Completed a
30 Hour
Turner Test
in Just
6 Hours!"



Amazing Cities Service Heat Prover Works 5 Times As Fast As Old Method... More Accurate, Too!

Robert W. Pixler, Laboratory Supervisor for Eclipse Fuel Engineering Company, Rockford, Illinois writes:

"It did not seem possible that an instrument that is so fast and direct-reading could possibly have the accuracy we demand. But, we found the Heat Prover equally exact, possibly even more exact, than standard

commercial testing equipment.

"Our test work with previous instruments was a long, drawn-out affair. But with the Heat Prover, we completed what would normally have been a 30-hour test in just 6 hours! ...and we doubt that our old equipment could have maintained the accuracy delivered by Cities Service Heat Prover."

WHEREVER A FURNACE OPERATION IS INVOLVED, the Heat Prover can help increase productivity by providing:

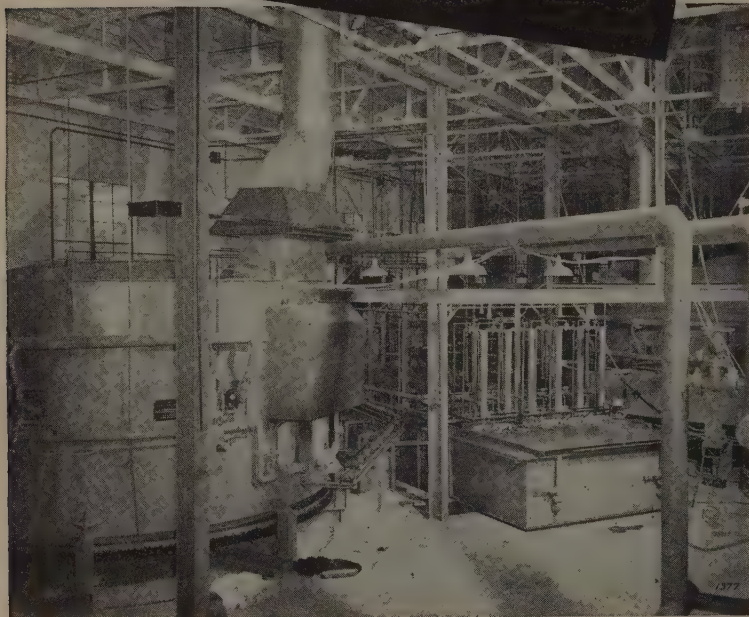
- Rapid, continuous sampling
- Simultaneous reading of oxygen and combustibles
- Direct measurement of oxygen and combustibles
- Easy portability
- No maintenance; no re-calibration

For details, contact nearest Cities Service office or write Cities Service Oil Company, Dept. B18, Sixty Wall Tower, New York City 5, N. Y.

QUALITY PETROLEUM PRODUCTS



Accurate, Uniform Heating WITH GASMACO FURNACES



In the production of 105 mm shells, accuracy and uniformity of heating are of vital importance. To obtain necessary tolerance, without the use of valuable alloys, two Gasmaco furnaces are employed — one for hardening and the other for drawing. A quench tank is located between the furnaces on this operation, which requires the services of only two men

The shells are hardened, quenched and drawn in a vertical position to ensure positive uniformity and accuracy. The result is better quality, faster production and lower cost.

For your heat treating problems and other furnace requirements, investigate the many advantages of Gasmaco. Call or write today.

SALES REPRESENTATIVES

LEWIS C. BAXTER
2207 Ashland Avenue
Toledo 10, Ohio

EMIL J. KLIKA
53 West Jackson, Room 733
Chicago 4, Illinois

McCONNELL SALES &
ENGR CORP
2809 Central Avenue
Birmingham 9, Alabama

CHRISTY FIREBRICK CO.
506 Olive Street
St. Louis 1, Missouri

C. E. NOBLE
The Noble Equip. Co
P. O. Box 314
LaGrange, Ohio

THE GAS MACHINERY CO.,
(Canada) Ltd.
9 McNab Street
Hamilton, Ontario, Canada

THE GAS MACHINERY COMPANY
16116 WATERLOO ROAD
CLEVELAND 10, OHIO

Designers • Fabricators • Erectors

Gas Plant Equipment and
Industrial Furnaces

THE GAS MACHINERY CO. (Canada), Ltd.
HAMILTON, ONTARIO



Faster Buildup

Crankshaft salvage that formerly required 1 hour for a shaft is completed by metallizing at a rate of 5 to 10 minutes per shaft. Preparation requires only an emery cloth line. Molybdenum metallizing wire that is sprayed on. About 0.025-inch usually required for finish allowance in this installation made by Metallizing Engineering Co. Inc., New York.

9-11 at Hotel Statler, New York.

M. Joseph Meehan, director of the Commerce department's office of business economics, will summarize findings of the study. Topics deal with markets that will be available to, or can be stimulated by manufacturers as their dense production slackens.

Acid Immersion Heater Built

Pilot model of a Ferrolum lead-clad steel direct fire gas burner for heating corrosive acid solutions is a development of Hupp Mills Inc., New York. Taking advantage of the fact that direct fire is a fast and efficient form of heating, the burner admits a gas flame through the wall of a tank into the Ferrolum tube which is immersed in the solution.

Previously use of this type of heater in corrosive liquids was handicapped by the absence of a unit which would have good resistance to a wide variety of concentrations of corrosives at various temperatures.

Ferrolum lead clad steel combines the strength of steel with the ability of lead to resist corrosives.

PHILADELPHIA HERRINGBONE GEARS

**KNOWN FOR
ACCURACY**



DF
TOOTH CONTOUR
SPACING
HELIX ANGLE

Continuous tooth construction gives great load carrying capacity with a smooth flow of power. Made by Philadelphia, their high quality results from selected materials, controlled manufacture and careful inspection.

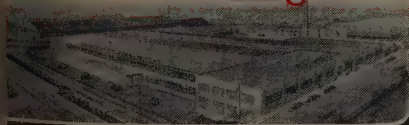
Philadelphia Continuous Tooth Herringbone gears are available in sizes up to 60" diameter, 18" face.

For full information send for our Gear Catalog.

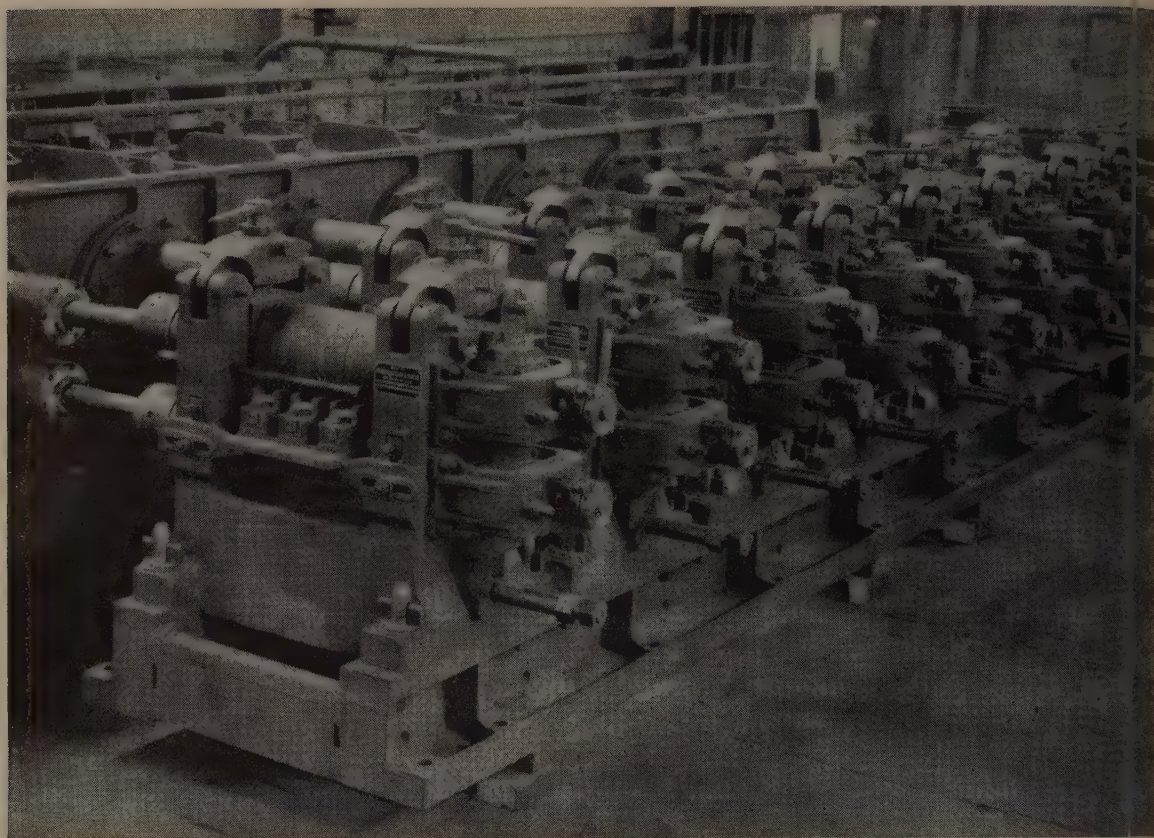


Philadelphia Gear Works, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.



*Industrial Gears and Speed Reducers
LimiTorque Valve Controls*



MODERNIZE YOUR ROD MILL *for Increased Production... Lower Costs*

Birdsboro's advanced engineering developed a new high speed finishing train, coilers and conveyors to modernize an existing mill. The eight stand finishing train is shown above at shop assembly.

If your production is lagging — or

you find operating and maintenance costs are top heavy, call on Birdsboro. We are well equipped and have the engineering skill to modernize existing equipment—or replace it with the most up-to-date, efficient steel mill machinery.

BIRDSBORO

STEEL FOUNDRY & MACHINE CO.
Birdsboro, Penna.

**STEEL MILL
MACHINERY**

Designers and Builders of:
Steel Mill Machinery • Crushing Machinery • Rolls
Hydraulic Presses • Special Machinery • Steel Castings

Offices in
BIRDSBORO, PA.
and
PITTSBURGH, PA.

the lead is chemically bonded to the outside of the pipe, heat transfer is reported excellent. Heat developed in the tube is dissipated rapidly by the surrounding air so that it prevents injurious action on the lead itself.

General Motors Motor Repair Plan

program to provide General Motors Co.'s customers with prompt service on broken down motor cars has been announced by W. D. Lee, small and medium motor department.

Under the small motor service plan, the program is expected to improve previous exchange plans by providing a more complete network of repair stations for fractional horsepower and integral horsepower motors. Under the plan, an authorized small motor service station will provide in- and out-of-warranty service on motors, generators and motor-generator sets of 1/2 to 15-hp and 1/4 to 10 kw. The service will include general reworking, furnishing renewal parts and exchanging motors for those that are inoperative.

Five Steps to Cost Control

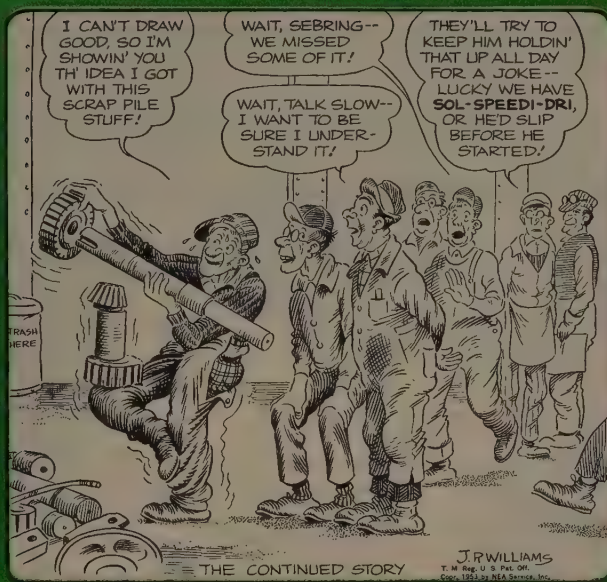
"Manufacturing Cost Control," a 4-page folder designed to show management how to cut costs by instituting adequate manufacturing control systems is available from Harold F. Howard Co., Detroit. Included in the folder prepared by the industrial and management consulting firm are break-down charts, cost-control forms and performance curves.

A five-step method for setting up a control system is described in detail. Typical examples of practices for cost controls should locate and include poor materials handling techniques, overtime charges, idle time, dishonest employment and small tool losses.

Ventilator Tests Outlined

A description of test procedures for roof-ventilators having centrifugal or axial-type wheels is announced by National Association of Fan Manufacturers Inc. and Proper Fan Manufacturers' Association, Detroit. To provide for testing of ventilators having centrifugal

OUT OUR WAY

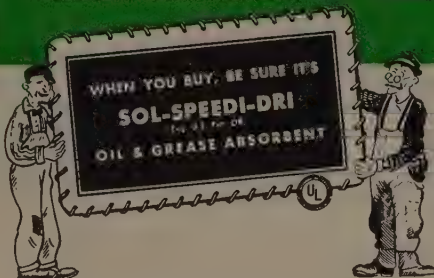


**Sales leader — because
it's value leader!**

SOL-SPEEDI-DRI

You buy an oil and grease absorbent because you don't want to take chances. So don't take chances with the absorbent you buy! Use Sol-Speedi-Dri to keep your floors clean and slip-proof. It leads the field, because pound for pound, dollar for dollar, it gives you *more for your money*, all factors considered. Laboratory control keeps quality always uniform. Send coupon *today* for free Sample!

SPEEDI-DRI CORP., 210 W. Washington Sq., Philadelphia 5, Pa.



Warehouse stocks maintained in principal cities of the United States and Canada.

Inquirers in New York, New England, and New Jersey should write to Speedi-Dri Corp. Elsewhere in U.S. to Waverly Petroleum Products Co., 1724 Chestnut St., Phila. 3, Pa. In Canada, G. H. Wood & Company Ltd., Toronto. Branches throughout Canada.

FREE SAMPLE Fill out the coupon and mail today for free sample and literature.

Name _____

Address _____

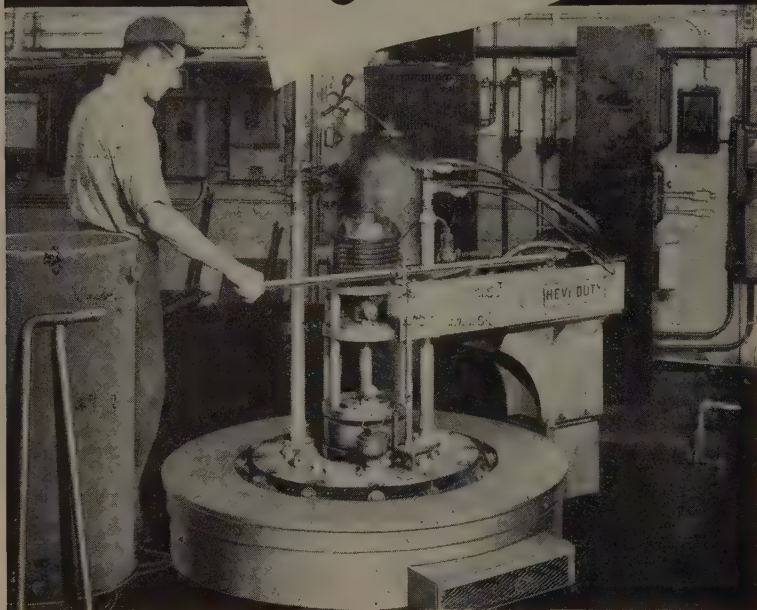
City _____

State _____



6 USES OF THE HEVI DUTY VERTICAL RETORT FURNACE

- ① Carburizing
- ② Nitriding
- ③ Dry Cyaniding
- ④ Bright Annealing
- ⑤ Normalizing
- ⑥ Scale Free Hardening



Six uses which make this one furnace a must in your heat treating department. Send for Bulletin HD-646.

HEVI DUTY

HEVI DUTY ELECTRIC COMPANY

MILWAUKEE 1, WISCONSIN

Heat Treating Furnaces... Electric Exclusively
Dry Type Transformers Constant Current Regulators



Turbo-Blower for Armco

Steel mill and engineering company representatives inspect a big blast furnace turbo-blower built at DeLaval Steam Turbine Co.'s Trenton, N.J., plant for Armco Steel Corp. One of a pair of blowers built for Armco, the unit is five-stage, with rated capacity to deliver 121,000 cfm of air at 35 pounds psig discharge pressure.

or axial-type wheels, with and without inlet duct, four arrangements of test equipment are illustrated. Procedures are outlined in NFM bulletins 110 and 113.

Lister Engines Get U.S. Outlet

Design features of the new reedom Range Lister diesel engines have been announced by Nabn Supply Co.'s Engine Division, Pittsburgh. It recently became sole U. S. distributor for Lister diesels. The engines are manufactured by R. A. Lister & Co. Ltd., Dudley, Gloucestershire, England.

The engines, made in 1, 23, 4 and 6 cylinders, in a range from 8 to 54 hp, were specially designed for operation at high speeds and at tropic to Arctic temperatures, without impairing reliability. Each cylinder develops 9 hp at 1800 rpm, except the single cylinder engine which develops 8 hp at 1500 rpm.

Mercury Salvage Continues

Mercury salvage program initiated by General Dry Battery Inc., Cleveland, will be continued through 1953, according to Carl Brooks, vice president, sales, started in 1951 to combat inflation.

prices, the program operates
gh 3800 hearing aid dealers
s the nation.
e firm reports it has received
al million mercury cells from
ng aid dealers since the start
e drive.

Physics Men Convene Feb. 18-20

Reinforced Plastics Division, So-
of the Plastics Industry Inc.,
ding its eighth annual tech-
and management conference
18-20 in Washington at the
ham Hotel. Military interest
products made from reinforced
es means this year's meeting
l enjoy the largest attendance
history.

st two days will emphasize the
lry and technical side of the
ry, and sessions on Feb. 20
il over management problems in
reinforced plastics field.

ing the three-day conference
ne will be a special exhibit of
reinforced plastics products with
mpasis on those now manufac-
ured for the military, and civilian
rojects which could be used for
ilitary applications.

Control Techniques Outlined

Techniques of using industrial
ontrols will be chief topic of an
state bearing the theme, "The
Automatic Factory," at University
f Wisconsin, Madison, Wis., Feb.

Conducted by the univer-
sity extension division and college
f engineering, the program will
ray Wisconsin industry men to
demonstrate recent develop-
ment in automatic machine and
ontrols control.

Cobalt-60 Teaches Cobalt-60 Use

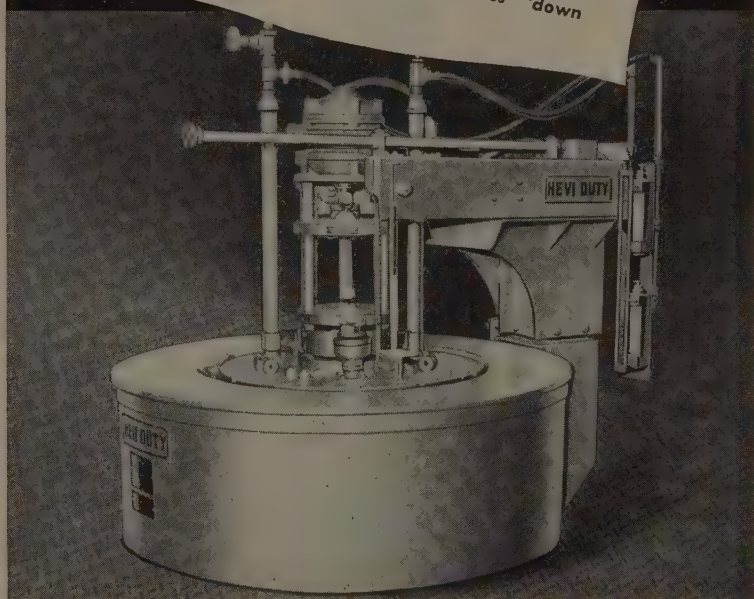
A two-day course designed to
rove basic knowledge needed to
se cobalt-60 sources in industrial
adiography is being offered by
raylab Inc.

Necessity for such a course, the
ompany says, is occasioned by
the growing use of Cobalt-60 as a
constructive testing means and
the difficulty industry has in ob-
taining competent radiographers
kill in the use of gamma radia-
tion.

The course of study covers such
as radiological safety, han-
dling of sources, exposure tech-
nique, film and screen uses, radia-

8 ADVANTAGES OF THE HEVI DUTY CARBURIZER-NITRIDER

- 1 Extremely versatile — may be used for all major heat treating operations.
- 2 Accurate process control through positive pressure in retort.
- 3 Low operating costs year after year.
- 4 Uniform results from heat to heat.
- 5 Fast handling of the charge.
- 6 Minimum floor space requirement.
- 7 Uniform temperature even in non-uniform load dispersement through zone control.
- 8 Rugged construction means less "down time".



Eight reasons why your heat treating department needs a
Hevi Duty Vertical Retort Furnace. Send for Bulletin HD-646.

HEVI DUTY

HEVI DUTY ELECTRIC COMPANY

MILWAUKEE 1, WISCONSIN

Heat Treating Furnaces... Electric Exclusively
Dry Type Transformers Constant Current Regulators



Dependable Respiratory Protection

Because Willson safety equipment is made after careful study of industry's needs, you get all the comfort and safety improvements first in Willson products. The complete Willson line of safety equipment includes more than a hundred face, eye and respiratory products for industry, farm and home—the most complete selection of safety equipment—and you can get them anywhere!

keep you on the safe side



WILLSON RESPIRATORS

WILLSON RESPIRATORS

Wearer safety and wearer comfort are the two primary considerations in designing and making Willson respirators. Styles are available to protect against metal fumes, mists, gasses, vapors and all dusts. Most styles bear U. S. Bureau of Mines approval.



GAS MASKS



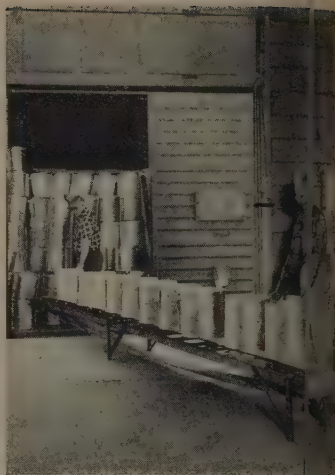
SAFETY GOGGLES



MONOGOGGLES



SAFETY SPECTACLES



Handling: No Weak Links

Modern handling methods move commercial and industrial floor cleaning equipment from receipt of material to product shipment in the new Peers-Wringer Inc. plant at Muskegon, Mich. In use at various points of production are power conveyors, as above, fork and air-hydraulic lift devices and wheeled floor cleaners.

tion survey meters, practice exposing and film development and evaluation.

Inquiries concerning the program should be directed to the firm at 130 High St., Boston, or to its offices at 2295 San Pablo Ave. Berkeley, Calif., where the same course will be given.

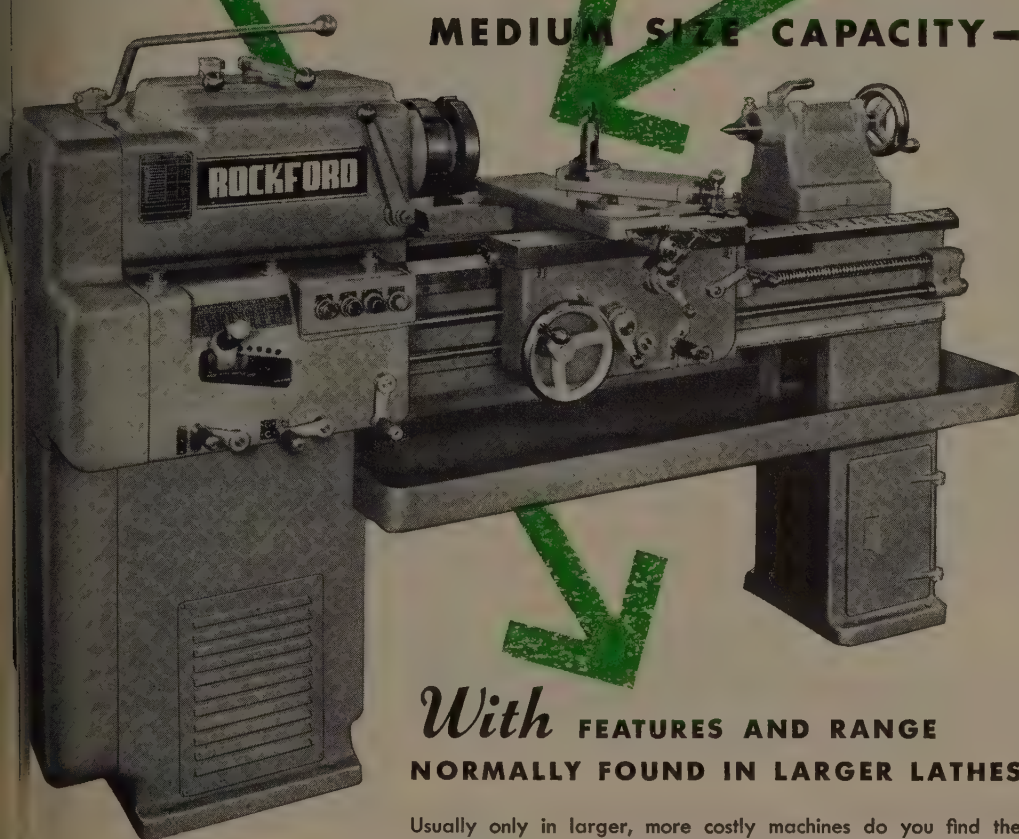
Abrasive Lists Simplified

Simplified lists of flint, mery and other coated abrasives are included in a recommendation published by the Commodity Standards Division, Office of Industry & Commerce, U. S. Department of Commerce. For flint and mery-coated categories, the recommendation gives class of goods, type of backing, sizes of sheets and rolls, type of coating and grade number in which each item is available.

Purpose of the current revision is to change the grade designation for certain flint goods from customary 10 grades to five grades. These will be extra-fine, fine, medium, coarse and extra coarse. These lines are used for technical applications where many grain size subdivisions are not to serve no useful purpose.

See your WILLSON distributor or write for catalog
WILLSON PRODUCTS, INC., 233 Washington St., Reading, Pennsylvania

**TOOL ROOM OR PRODUCTION—
SPEEDS FOR CARBIDE TOOLS—
MEDIUM SIZE CAPACITY—**



With **FEATURES AND RANGE
NORMALLY FOUND IN LARGER LATHES**

Usually only in larger, more costly machines do you find the combination of speeds, swing, power, feeds and threads that are standard equipment on Rockford Economy Lathes. These features make it possible to machine a wider range of work with fewer non-productive hours than is possible with many machines in its class.

Medium-sized and economy-priced, it's built to handle any job that can be turned or threaded within 16-1/2" or 18-1/2" swing, and 30" to 102" center distance. 3100 lbs. of weight, 6' bed and zero precision bearings furnish the rigidity and precision for turning out tool room accuracy.

Ask a Rockford Machine Tool Co. representative to give you full details on these machines, or write direct for our new bulletin No. 900F.

ROCKFORD ECONOMY LATHES—16" and 18"

MEDIUM-SIZED

ECONOMY-PRICED

ROCKFORD MACHINE TOOL CO.
2500 Kishwaukee Street, Rockford, Illinois

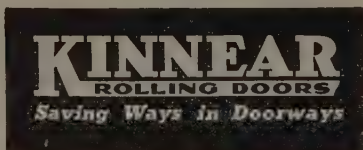


KINNEAR Steel Rolling Doors answer widest range of door needs

This all-new 1953 catalog gives you full, up-to-the-minute information on how to save maximum space, cut costs, boost efficiency and get more protection at doorways, in old or new buildings. In addition to complete data on Kinnear Steel Rolling Doors—the doors with the famous, *Kinnear-originated* curtain of interlocking steel slats—it tells all about Kinnear Steel Rolling Fire Doors, sectional type Kinnear Wood and All-Steel RoL-TOP Doors, and the protective Kinnear Steel Rolling Grilles. Write for your FREE copy TODAY!

The KINNEAR Manufacturing Co.

Offices and Agents in Principal Cities
 FACTORIES:



1780-1800 Fields Ave.
 Columbus 16,
 Ohio

1742 Yosemite Ave.
 San Francisco 24,
 California

New Books

Advanced Mathematics

METHODS OF APPLIED MATHEMATICS, by Francis B. Hildebrand; cloth, 523 pages, 5½ x 8½ inches; published by Interscience Hall Inc., New York, for \$7.75; available from STEEL, Penton Bldg., Cleveland 3, Ohio.

"The principal aim of this volume," states the author, "is to place at the disposal of the engineer or physicist the basis of an intelligent working knowledge of a number of facts and techniques relevant to four fields of relatively advanced mathematics."

Rigorous proof is provided where it is believed that such proof will be helpful and comprehensible to the student. The author also states the desired result precisely and indicates, if possible, why that result may be formally expected to be correct. Material is organized in such a way that certain topics may be omitted. There is very little interdependence among the chapters.

Chapter headings are: Matrix Determinants and Linear Equations; Calculus of Variations and Applications; Difference Equations; Integral Equations.

Engineering Materials Textbook

TEXTBOOK OF ENGINEERING MATERIALS by Melvin Nord; cloth, 518 pages, 6 x 9 inches; published by John Wiley & Sons Inc., New York, for \$6.50; available from STEEL, Penton Bldg., Cleveland 3, Ohio.

Here the subject of engineering materials is presented in a fundamental, coherent manner. It achieves a balanced treatment, midway between "handbook engineering" and abstractions which never quite become specific. The book is written as a one-semester course for all engineering students to introduce them to the engineering point of view early in their careers.

The book begins at an elementary level, introducing basic concepts in physics, chemistry, geology and various fields of engineering. The concepts are applied to problems of occurrence, production, properties and uses of various materials in engineering.

1953 Credit Manual

CREDIT MANUAL OF COMMERCIAL LAWS 1953; cloth, 796 pages, 6 x 9 inches; published by National Association of Credit Men, New York, for \$10.

The 45th annual edition of this digest of laws affecting credit and financial operations of business firms gives the latest information on re-

When You Build a Pile Driver-You Need

DEPENDABILITY

THAT'S WHY McKIERNAN-TERRY SPECIFIES

MEEHANITE® CASTINGS



Fig. 1

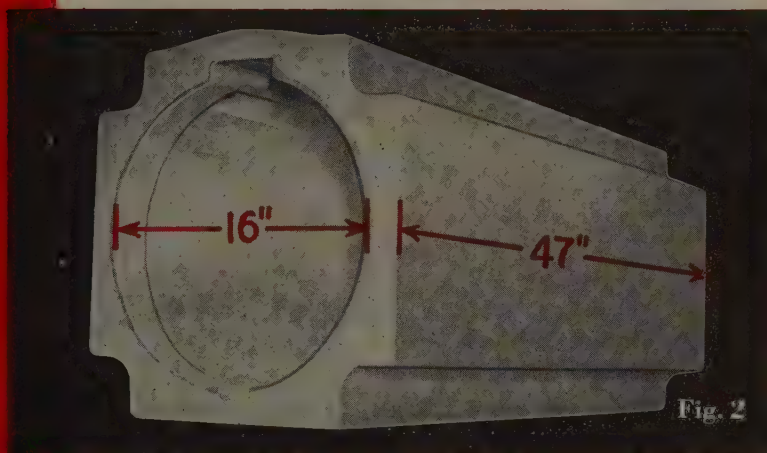


Fig. 2

In the pile driver illustrated (Fig. 1), built by McKiernan-Terry Corporation, Dover, New Jersey, the severe working conditions imposed upon such units require complete dependability in operation. The top and bottom (Fig. 2) cylinders are vital units in the functioning of the equipment and must be dense, pressure tight, strong and machinable. Both cylinders are Meehanite castings, each weighing about 2,000 pounds.

Meehanite castings regularly meet the rigid specifications for these components.

MEEHANITE FOUNDRIES

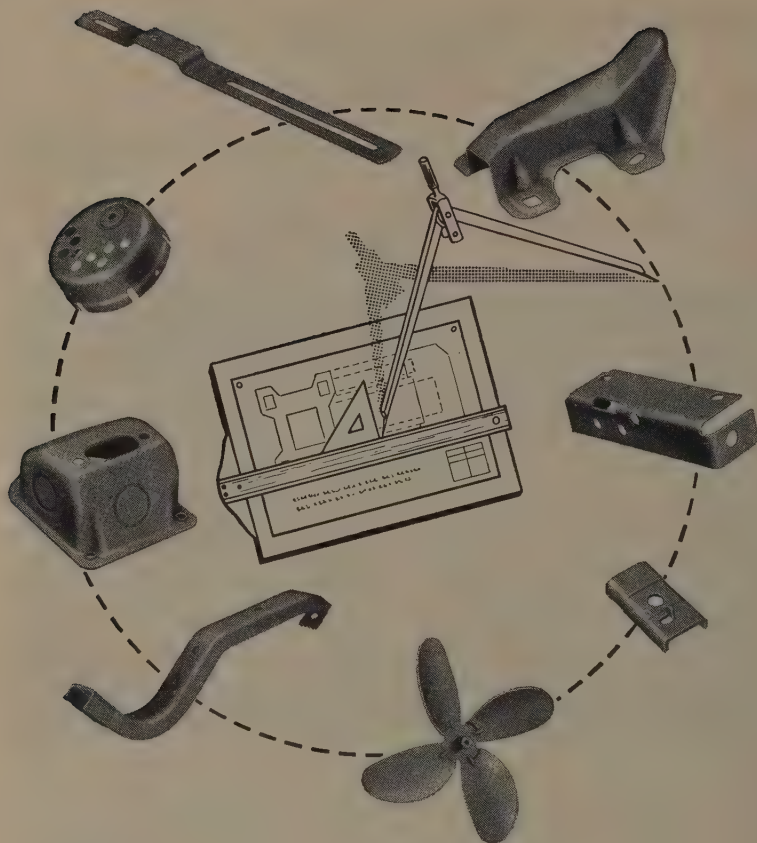
American Brake Shoe Co.	Mahwah, New Jersey	Hardinge Manufacturing Co.	New York, Pennsylvania
the American Laundry Machinery Co.	Rochester, New York	Johnstone Foundries, Inc.	Grove City, Pennsylvania
Flas Foundry Co.	Detroit, Michigan	Kanawha Manufacturing Co.	Charleston, West Virginia
Inner Iron Works	St. Louis, Missouri	Koehring Company	Milwaukee, Wisconsin
Irnett Foundry & Machine Co.	Irrington, New Jersey	Lincoln Foundry Corp.	Los Angeles, California
J. W. Bliss Co.	Hastings, Mich. and Toledo, O.	London Concrete Company, Ltd.	Brantford, Ontario
Jilders Iron Foundry	Providence, Rhode Island	E. Long Ltd.	Orillia, Ontario
ompton Foundry	Compton, Calif.	Olis Elevator Co., Ltd.	Hamilton, Ontario
ontinental Gin Co.	Birmingham, Alabama	Palmyra Foundry Co., Inc.	Palmyra, New Jersey
rawford & Doherty Foundry Co.	Portland, Oregon	The Henry Perkins Co.	Bridgewater, Massachusetts
the Cooper-Bessemer Corp.	Mt. Vernon, Ohio and Grove City, Pa.	Pohlman Foundry Co., Inc.	Buffalo, New York
e Laval Steam Turbine Co.	Trenton, New Jersey	Rosedale Foundry & Machine Co.	Pittsburgh, Pennsylvania
empire Pattern & Foundry Co.	Tulsa, Oklahoma	Ross-Meehan Foundries	Chattanooga, Tennessee
ireel-Birmingham Co., Inc.	Ansonia, Connecticut	Shenango-Penn Mold Co.	Dover, Ohio
orence Pipe Foundry & Machine Co.	Florence, New Jersey	Smith Industries, Inc.	Indianapolis, Ind.
lton Foundry & Machine Co., Inc.	Cleveland, Ohio	Standard Foundry Co.	Worcester, Massachusetts
eneral Foundry & Manufacturing Co.	Flint, Michigan	The Stearns-Roger Manufacturing Co.	Denver, Colorado
reenlee Foundry Co.	Chicago, Illinois	Traylor Engineering & Mfg. Co.	Allentown, Pennsylvania
the Hamilton Foundry & Machine Co.	Hamilton, Ohio	Valley Iron Works, Inc.	St. Paul, Minnesota
ardinge Company, Inc.	New York, New York	Warren Foundry & Pipe Corporation	Phillipsburg, New Jersey

"This advertisement sponsored by foundries listed above."

For the new Meehanite Bulletin #37,
Pro That Meehanite Bridges the Gap Between
Cast Iron and Steel".

MEEHANITE®

NEW ROCHELLE, N. Y.



Design for Economy...

with Stampings by Geometric

To a large extent the cost of your product is determined right on the drawing board. In designing new products or redesigning old ones don't overlook the cost-saving advantages of metal stampings. Many progressive manufacturers have cut cost of component parts up to 75% by converting from castings to stampings. Savings of 50% are common.

Geometric engineers, skilled in the analysis of all kinds of stamping problems are glad to show you how your product, or parts of it, can be made better, lighter and at much lower cost in our modern high-production stamping plant. You get another efficient manufacturing department for your business — without overhead expense or operating worry.

It pays you to send your blueprints for quotation—today.



GEOMETRIC STAMPING CO.

A Subsidiary of Barium Steel Corp.

1130 E. 200th Street

Cleveland 17, Ohio

cent amendments and new laws both state and federal. It tells how to contact the Army, Navy and Air Force for defense contracts. The manual tells how defense production loans are obtained under regulation V. Among the important subjects covered are: New federal fair trade law, many amendments to the National Bankruptcy Act; new price-and-wage-control setup under the 1953 National Defense Act; major provisions in state laws pertaining to sales, credits, collections, assignments, judgments, notes, lien and other credit problems that arise regularly in business.

Two chapters cover bonds of public improvements, both federal and state. A complete summary of state bond laws that provide protection to material suppliers, revised to include all 1952 changes is a feature of this section. Credit problems met in export and import trade are covered in another extensive chapter.

Physical Metallurgy of Metals

NONFERROUS PHYSICAL METALLURGY, by Robert J. Raudebaugh; cloth, 345 pages, 6 x 9 inches; published by Pitman Publishing Corp., for \$6.50; available from STEEL, Penton Bldg., Cleveland 13, O.

More important nonferrous metals are discussed in this book from the aspect of physical metallurgy. Particular emphasis is placed on recent developments in their processing, fabrication and application. An extensive bibliography is presented at the end of each chapter.

Nonferrous metals covered include Aluminum and its alloys; magnesium and its alloys; copper and its alloys; nickel and nickel alloys; alloys of cadmium, lead, tin and zinc some less widely produced nonferrous metals and their alloys; powder metallurgy and refractory metal composites.

Why Businesses Live

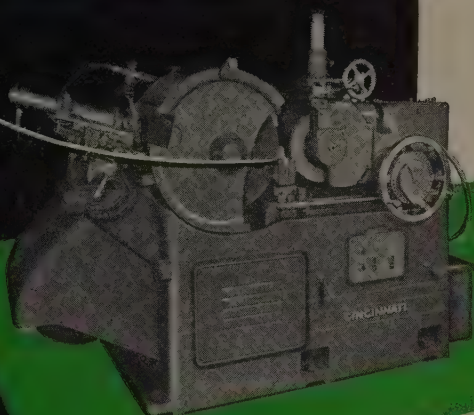
LONGEVITY OF MANUFACTURING CONCERNS IN ALLEGHENY COUNTY, by William W. Frasure; cloth, 226 pages, 6 x 9 inches; published by University of Pittsburgh Press, Pittsburgh, Pa., for \$4.50; available from STEEL, Penton Bldg., Cleveland 13, O.

Why does a business live and grow? Why does a business die? The answers to these questions are explained by the author who used Allegheny County, Pa., as his test laboratory. The county is industrially significant for volume and value of manufacture and also as a cross section of industrial employment.

The author analyzed facts that have contributed to survival within each manufacturing group and em-

OK CENTERLESS BLADES

... standard equipment on
practically every centerless
grinder built



because they

L-A-S-T L-O-N-G-E-R

The phenomenal long life of Ohio Centerless Work Blades and Guides is due to their extreme hardness, high finish and close tolerances. Long blade life means high production resulting in lower costs.

Made of tungsten carbide, high speed steel, cast alloys or iron. Non-metallic tips available upon request.

In addition to standard blades, special contours, angles or shapes are made to your blue prints.

Manufacturers of
Hardened Spacers, Ways, Gibs, Ball Races,
Slitter Knives, Shear Blades,
Rotary Shear Knives, Bronze
Ways, Wear Strips.

OHIO KNIFE CO. DEPT. C
CINCINNATI 23, OHIO
Please send free Bulletins on OK
Centerless Blades, etc.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

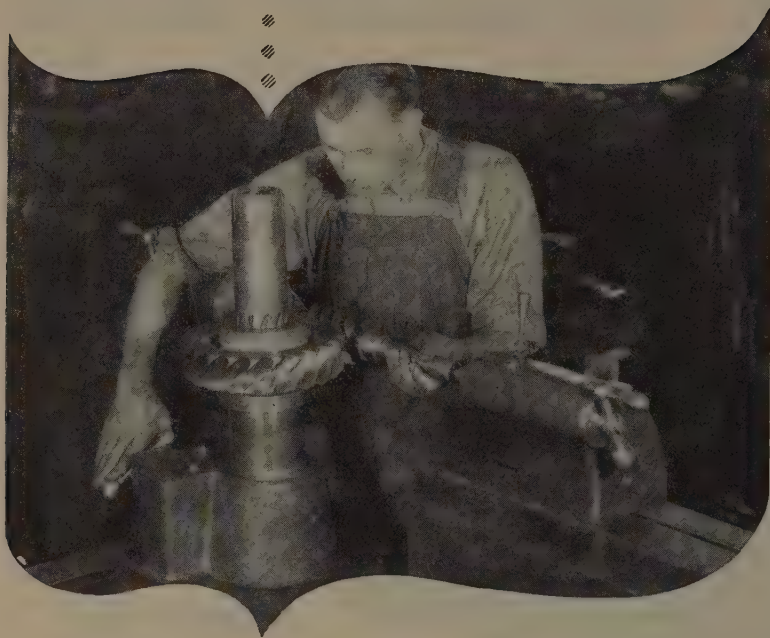


WITH OHIO GREEN

THE OHIO KNIFE CO.

CINCINNATI 23, OHIO

P PRECISION



TO LESS THAN .0005 INCH

on H & S worms and worm gears

● Checking an H & S Worm & Gear on a precision inspection fixture for accuracy to less than .0005" on both indexing and lead...an accuracy that insures perfect thread contour and balance. These exceedingly close limits are obtained by the company's use of its own exclusively designed grinding machines. It's precision in manufacturing that insures higher efficiency, longer life and quieter operation. Yet this extreme precision is only one of seven outstanding features that are your guarantee of the finest worms and gears possible.

THE HORSBURGH & SCOTT CO.

GEARS AND SPEED REDUCERS

5112 HAMILTON AVE. • CLEVELAND 14, OHIO, U.S.A.

phasizes fourteen longevity factors he considers significant.

Dr. Frasure has also included an analysis of individual companies within the county that have survived the precarious period from 1873 to 1947.

Renegotiation Study

HOW TO HANDLE RENEGOTIATIONS, by William J. Casey and C. Richard [unclear]. flexible cover, 204 pages, 9 1/4 x 11 inches; published by Business Reports, Inc., New York, for \$24.

This study analyzes the renegotiation results and arguments in over 200 cases which government contractors have filed in the Tax Court. Survey shows how renegotiations affect company profits. It also contains a breakdown of Securities and Exchange Commission figures on company profits and overhead expenses into 112 industry groups. It shows the ratio of profits before taxes to sales and to net worth for these seven years running from 1944 through 1950.

The study shows how a company can develop a case to justify a higher than normal rate of profit by showing how it qualifies on statutory factors spelled out in the renegotiations law. Thus, if a company can show that it assumed extra risks, its costs were reasonable, its operation efficient, that it made special contribution to the defense effort and if business operation differed in character from that prevailing normally in its industry, it may be able to justify a case for higher than normal margin of profit.

Symposium on Metals

ELASTICITY IN ENGINEERING, by E. E. Sechler; cloth, 419 pages, 6 x 9 inches; published by John Wiley & Sons, Inc., New York, for \$8.50; available from STEEL, Penton Bldg., Cleveland 1, O.

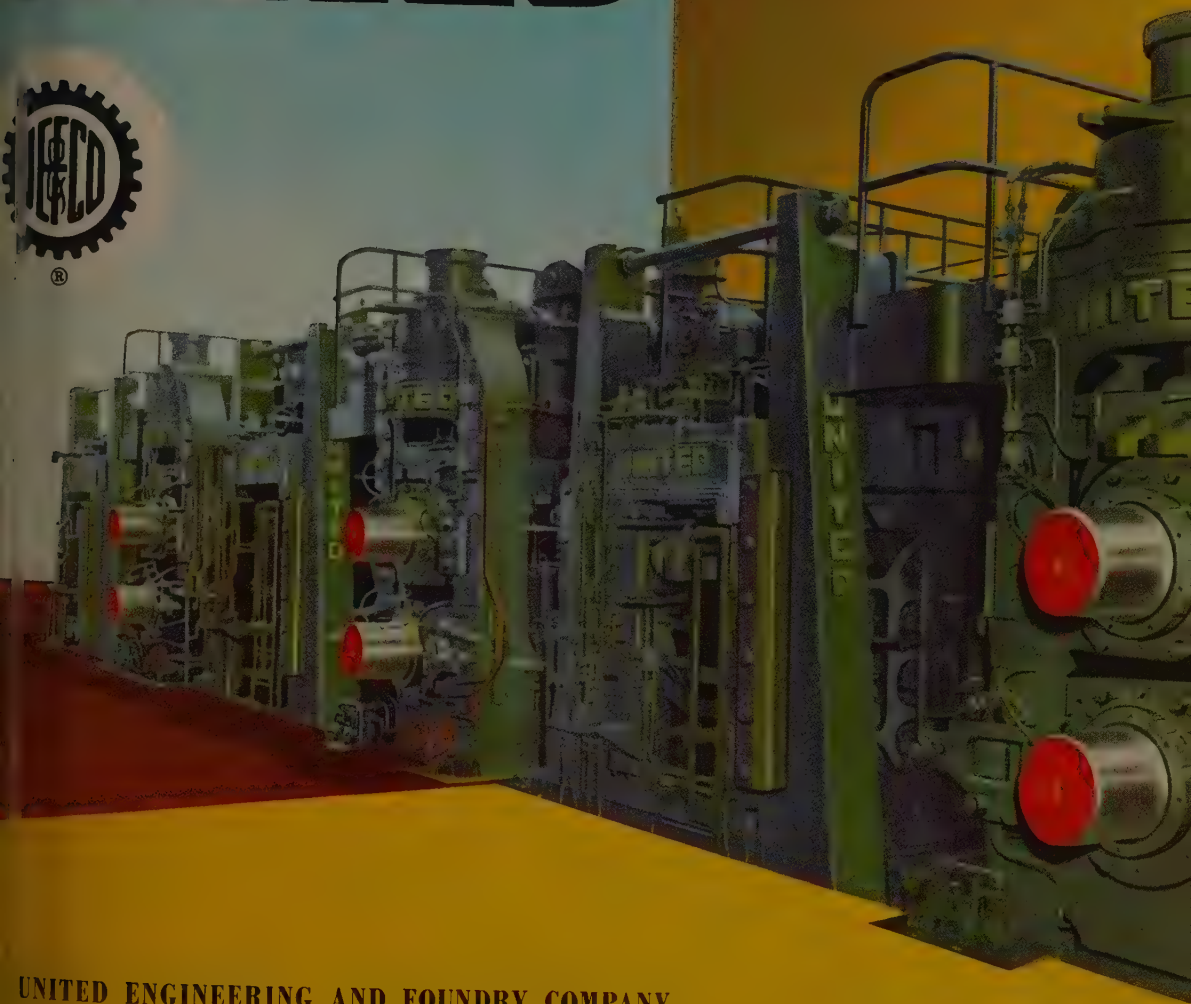
Written for engineers working in fields of structural analysis, this book brings together the material an engineer needs for a broad background of knowledge based on fundamental theories of stress and deformation of elastic bodies under load. The material is presented in three parts.

The first part discusses the basic equations in Cartesian, cylindrical and spherical co-ordinates that are necessary for the solution of elastic problems. The second part discusses the elastic problems of stable structures and shows where exact solutions are possible, indicates types of approximate solutions and its upper boundaries between which various levels of engineering accuracy are obtained. The third section deals in a similar manner with the problems of unstable elastic structures.

UNITED



*6 stand continuous horizontal
and vertical Billet Mill*

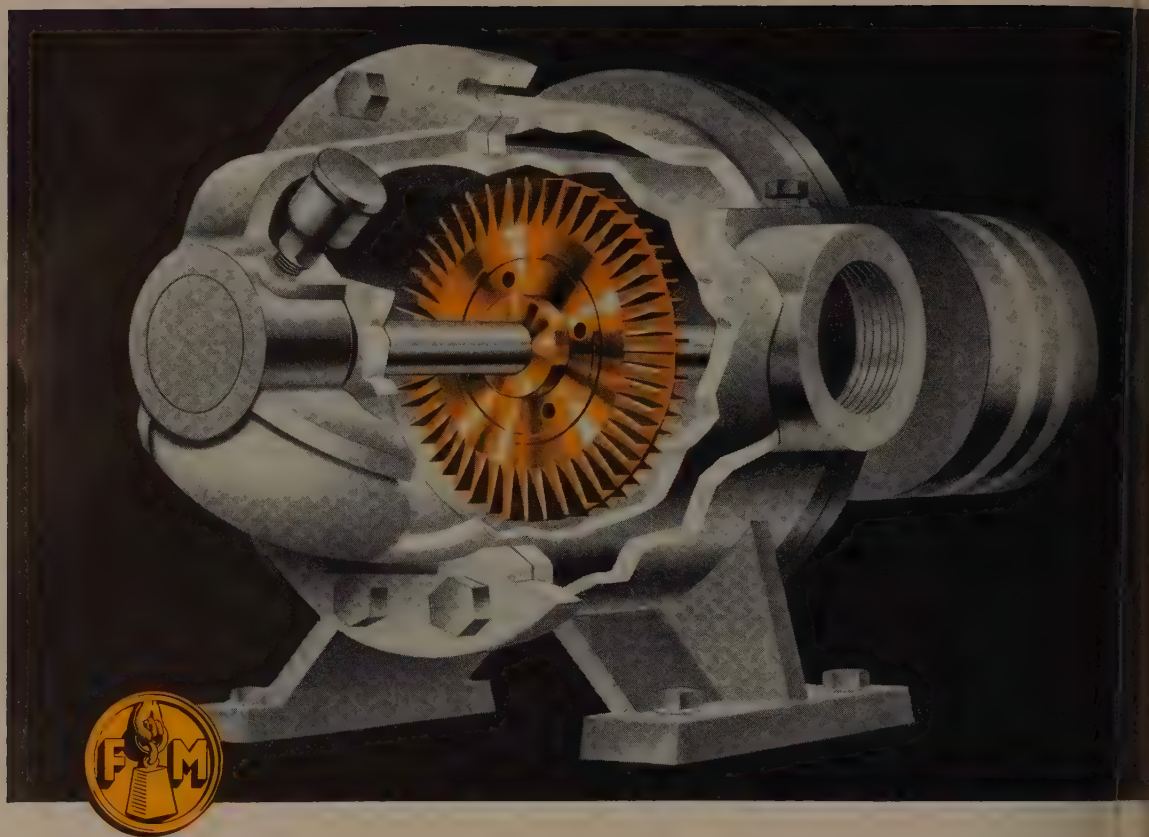


UNITED ENGINEERING AND FOUNDRY COMPANY
Pittsburgh, Pennsylvania

**PLANTS AT PITTSBURGH • VANDERGRIFT • NEW CASTLE
YOUNGSTOWN • CANTON**

**SUBSIDIARIES: ADAMSON UNITED COMPANY, AKRON, OHIO
LOBDELL UNITED COMPANY, WILMINGTON, DELAWARE
STEDMAN FOUNDRY AND MACHINE CO., INC., AURORA, INDIANA**

*Designers and Builders of Ferrous and
Nonferrous Rolling Mills, Mill Rolls,
Auxiliary Mill and Processing Equip-
ment, Presses and other Heavy Machin-
ery. Manufacturers of Iron, Nodular
Iron and Steel Castings, and Weldments.*



Its heart is its one moving part

With castings in quality as well as in quantity, National Bearing Division helps its customers make better products.

When a leading pump manufacturer entrusts National Bearing Division with producing vital pump components, and producing them to the exacting standards required, there are some important reasons why.

This Fairbanks, Morse Turbine Pump combines high pumping efficiency with low pumping costs . . . thanks to close-fitting, precision-machined bronze liners and impellers that are easily replaced on the job, at a big saving over new housings.

These castings—particularly the impeller—have to be “right” . . . free from blow-holes,

sand inclusions . . . and must be exceptionally fine-grained. Otherwise lost machining time, before defects are found, can seriously increase production costs.

National Bearing Division was picked to supply castings for the very heart of this Fairbanks, Morse Turbine Pump . . . because of an often demonstrated ability to mass-produce non-ferrous castings to a high standard of uniformity and quality.

If your product requires non-ferrous components, it will pay you to investigate National Bearing Division. We have the foundry facilities and skills that can make important contributions to your product performance . . . with castings in quality as well as quantity. The end result may well save you money, too!

Brake Shoe

NATIONAL BEARING DIVISION

4925 Manchester Avenue • St. Louis 10, Mo.

PLANTS IN: ST. LOUIS, MO. • MEADVILLE, PA. • NILES, OHIO • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

CALENDAR OF MEETINGS

ary 4-6, Computer Conference Committee, Institute of Radio Engineers and American Institute of Electrical Engineers: Western computer conference, Hotel Statler, Los Angeles. Information: G. H. West, Publications Dept., Consolidated Engineering Co., Pasadena 8, Calif.

ary 6-7, American Foundrymen's Society: California Regional Foundry Conference, Hotel Claremont, Berkeley, Calif. Information: John Birmingham, AFS, 593 Ket St., San Francisco 5.

ary 9-11, American Road Builders' Association: Annual meeting, Hotel Statler, on. Association address: 1319 F St., Washington 4. Secretary: Gen. Eugene bold.

ary 15-19, Automotive Electric Association: Annual meeting, Edgewater Beach Hotel, Chicago. Association address: 802 Michigan Bldg., Detroit 26. Secretary: V. Potter.

ary 16-19, American Institute of Mining and Metallurgical Engineers: Annual meeting, Hotel Statler, Los Angeles. Institute address: 29 W. 39th St., New York 18. Secretary: E. H. Robie.

ary 16-19, Industrial Ventilation Conference: Michigan State College, E. Lansing, Mich. Co-sponsor: Division of Industrial Health, Michigan Dept. of Health, Information: K. E. Robinson, Division of Industrial Health, Lansing 4.

ary 19-20, Society of the Plastics Industry Inc.: Annual reinforced plastics conference, Shoreham hotel, Washington. Society address: 67 W. 44th St., New York 36. Executive vice president: William T. Cruse.

Feb 2-6, American Society for Testing Materials: Spring meeting, Hotel Statler, Philadelphia. Society address: 1916 Race St., Philadelphia. Secretary: Robert J. Painter.

Feb 2-6, Pittsburgh Section, American Chemical Society and Spectroscopy Society of Pittsburgh: Pittsburgh conference on analytical chemistry and applied spectroscopy, University of Pittsburgh, Pittsburgh. Information: L. E. Pitzer, U. S. Steel Co., 525 Wm. Place, Pittsburgh 30.

Mar 3-5, Society of Automotive Engineers: National passenger car, body and material meeting, Hotel Sheraton-Cadillac, Detroit. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

Mar 6, Bituminous Coal Research Inc.: Annual meeting, Netherland Plaza hotel, Cincinnati. Institute address: 2609 First National Bank Bldg., Pittsburgh 22. Secretary: C. A. Reed.

Mar 8-11, American Institute of Chemical Engineers: Annual spring meeting, Hotel Ma Vista, Biloxi, Miss. Institute address: 120 E. 41st St., New York 17. Secretary: Stephen L. Tyler.

Mar 11, Foundry Education Foundation: Annual meeting and technical, university & industry advisory committee conference, Cleveland, Cleveland. Foundation address: Terminal Tower, Cleveland 13. Executive director: George K. Dreher.

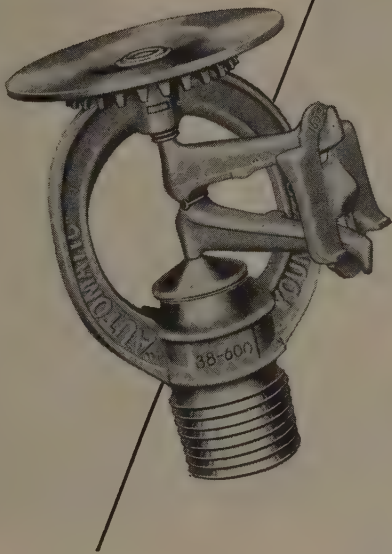
Mar 11-12, Society of the Plastics Industry Inc.: Annual Canadian conference, General Hotel, Niagara Falls, Canada. Society address: 67 W. 44th St., New York 36. Executive vice president: William T. Cruse.

Mar 15-19, American Chemical Society: Spring meeting, Hotels Statler and Biltmore, Los Angeles. Society address: 1155-16th St. N.W., Washington 6. Assistant secretary: R. M. Warren.

Mar 16-18, National Association of Waste Material Dealers: Annual meeting, Hotel Rad Hilton, Chicago. Association address: 271 Madison Ave., New York 16. Secretary: Clinton M. White.

Mar 16-20, National Association of Corrosion Engineers: Annual conference, Hotel Statler, Chicago. Association address: 919 Michigan Bldg., Houston 2. Secretary: A. B. Campbell.

Terrific!
is the word
for



"Automatic" SPRAY Sprinklers

TERRIFIC . . . That's the word that insurance underwriters use in describing the new "Automatic" SPRAY Sprinkler. It's a "Sure Fire Killer", designed for quick action and maximum effective distribution of water.

Property owners get protection-PLUS in all types of buildings with this vastly improved fire fighter that can be installed on both exposed and concealed piping systems. And . . . "Automatic" SPRAY Sprinklers are easily interchangeable with obsolete devices . . . cost no more than old style sprinklers.

This important advancement in the science of fire safety is further reason why "Automatic" Sprinkler is universally recognized as FIRST IN FIRE PROTECTION !

New literature available on request

"Automatic" Sprinkler

CORPORATION OF AMERICA . YOUNGSTOWN, OHIO

OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

UL LISTED AND
FM APPROVED



The U. S. Steel Supply team that gives you *personalized service*



**Here is your "Aide-de-Camp"
in our warehouse**

THE Warehouse Superintendent is your "on the spot" production supervisor in our warehouse. He attends to your wants in steel with the same discrimination that you yourself would exercise. His personal interest in your supply problems, supplemented by his expert knowledge of the modern methods of handling and loading steel, guarantees you real satisfaction in your steel order.

As "Boss" of our warehouse, the Superintendent is always ready to give you prompt, efficient day-to-day service *with special provisions* to meet your emergency rush requirements. Just contact your U.S. Steel Supply salesman and he'll see that the services of the Warehouse Superintendent and *all* the personalized services of U.S. Steel Supply are put to work as needed to meet your requirements.

YOUR "ONE CALL" SOURCE OF STEEL SERVICE

U.S. STEEL SUPPLY



UNITED STATES STEEL SUPPLY DIVISION, UNITED STATES STEEL CORPORATION
HEADQUARTERS: 208 So. LA SALLE ST., CHICAGO 4, ILL. WAREHOUSES AND SALES OFFICES:

BALTIMORE • BOSTON • CHICAGO • CLEVELAND • HOUSTON • LOS ANGELES • MILWAUKEE • MOLINE, IL
NEWARK • PITTSBURGH • PORTLAND, ORE. • ST. LOUIS • TWIN CITY (ST. PAUL) • SAN FRANCISCO • SEATT
Sales Offices: INDIANAPOLIS • KANSAS CITY, MO. • PHILADELPHIA • PHOENIX • ROCKFORD, ILL. • SALT LAKE CITY • SOUTH BEND • TOLE
TULSA • YOUNGSTOWN

UNITED STATES STEEL

NEW

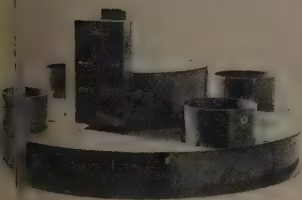
PRODUCTS and equipment

Reply cards on page 163 will bring you more information on any new products and equipment in this issue

Centrifugal Casting Machine

Semiautomatic in operation

This vertical, four-spindle turn-
table type semiautomatic centrifugal casting machine is used to cast all steel castings. Same type machine can be used to make ferrous as well as nonferrous centrifugal castings in sand or permanent mold. Machine automatically indexes 90 degrees and stops. When pouring station approaches pouring station, machine automatically comes up to spin-



ing speed. When metal is poured, rotation initiates indexing for next 90 degrees.

Poured mold continues to spin until metal has solidified and approaches casting removal station. As mold approaches this station it is braked to a stop. Centrifugal Casting Machine Co., Dept. T, Box 947, Tulsa, Okla.

USE REPLY CARD—CIRCLE No. 1

Universal Master Comparator

Applies constant pressure

Friction-free sensitivity of this universal comparator is designed to assure repetitive accuracy. All indication is accomplished by an electronic circuit. A constant pressure is applied to the workpiece by each contact at every point of measurement.

Comparator has a selection of four

magnifications: 500, 1500, 5000 and 15,000 to 1—all on the same meter. These magnifications, with good measuring contact range, make it possible for the operator to use



the same instrument for tracing work from rough grind to finished lap. Federal Products Corp., Dept. ST, 1144 Eddy St., Providence 1, R. I.

USE REPLY CARD—CIRCLE No. 2

Cable Proof Tester

... saves service outages



Cable fault-finder and direct-current proof test unit is an impulse or surge generator designed to locate faults quickly and accurately.

Operator follows the route of the

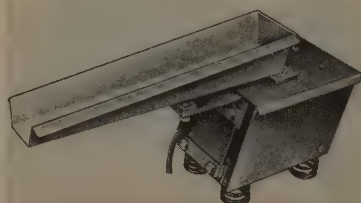
disconnected cable until he locates exact faulty spot. Tester is harmless to good insulation. Electrical Distributors Co., Dept. ST, Liberty Trust Bldg., Philadelphia 7, Pa.

USE REPLY CARD—CIRCLE No. 3

Vibrating Feeder

... feeds 500 pounds per hour

Electromagnetic vibrating principle employed by the manufacturer in its larger models is applied to the small Vibratory feeder model F-00. Feeding capacity reaches 500 pounds per hour of bulk mate-



rial to various types of industrial processing equipment.

The compact unit is 7¼ inches high, about 14 inches long and weighs 14 pounds. These dimensions make it suitable for incorporation into weighing and packaging machines and other types of processing equipment. Control of material flow rate from the feeder is exercised by a rheostat in the separate controller. Syntrol Co., Dept. ST, Homer City, Pa.

USE REPLY CARD—CIRCLE No. 4

Greaseless Composition

... for buffing, polishing

Acme greaseless composition for buffing and polishing adheres to the wheel face to form a heavy fast drying head which does not



WIRE

ROUND

**FLAT
OR**

SHAPED

PAGE

makes them all...

**LOW CARBON
HIGH CARBON
STAINLESS
SPECIAL ALLOY
ARMCO IRON**

**YOU draw the Shape
—Page can draw
the Wire**

Tell us the way *you* want it. We'll follow *your* specifications.

Cross-sectional areas up to .250" square; widths up to 3/8"; width-to-thickness ratio not to exceed 6 to 1.

*Wire or
Write Today*

**PAGE
WIRE**

ACCO



**PAGE STEEL AND WIRE DIVISION
AMERICAN CHAIN & CABLE**

Monessen, Pa., Atlanta, Chicago, Denver, Detroit,
Los Angeles, New York, Philadelphia,
Portland, San Francisco, Bridgeport, Conn.

NEW PRODUCTS
and equipment

fly off and remains firm in warm weather. Composition also features a consistently sized abrasive. It may be used on brushes, buffing wheels and for hand buffing. Hanson-Van Winkle-Munning Co., Dept. ST, Matawan, N. J.

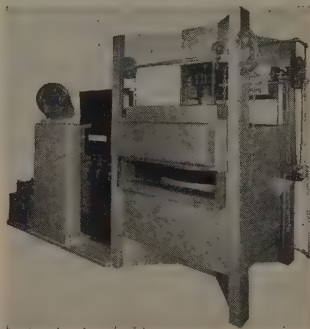
USE REPLY CARD—CIRCLE No. 5

Flattening, Tempering Furnace

... gas-fired recirculating

Furnace has 350 to 1000° F temperature range, is used for flattening and tempering large, thin, circular pieces. A gas-fired recirculating type, the burner fires into a combustion chamber on the inlet side of the recirculating fan. Combustion blower is mounted on top of the air duct.

Inside the furnace are two large circular cast iron dies, 42 inches di-



ameter. One is fastened to the bottom end of the cylinder rod with a ball socket joint. The other, the bottom die, rests on a steel structure but is not fastened rigidly. Doors on both sides provide easy access from either side. Temperature control and motor switches are all mounted on a single panel. Waltz Furnace Co., Dept. ST-9, 1901 Symmes St., Cincinnati, O.

USE REPLY CARD—CIRCLE No. 6

Solder Paste-Flux

... fast application, less waste

Eutec-TinWeld is a paint-on solder paste combined with flux that can also be used as a tinning compound in paste form for tinning operations. It consists of a lead-tin solder that is premixed, in paste form, in proper proportions with its specially compounded accom-



**How Many of
These Services
Are Included
In Your Plans?**

**General Construction
Building Alterations
Demolition
Foundations
Press Erecting
Machinery Moving
Crane Installation
Conveyor Installation
Process Wiring & Piping
Warehousing
Steel Fabrication
Export Packaging**

When building your new plant or when modernizing or expanding your present one the INDUSTRIAL PACKAGE PLAN, integrating construction and machinery installation services under one contract, is designed to reduce costs and provide for earlier production.

**ONE CONTRACT •
ONE CONTRACTOR •
ONE RESPONSIBILITY**

*Write for information on
the Industrial Package
Plan. Complete brochure
on request. No obligation,
of course.*



**COMMERCIAL
CONTRACTING
CORPORATION**

GENERAL CONTRACTOR

**12160 CLOVER LANE
DETROIT 4, MICHIGAN
TEXAS 4-7401**

NEW ARITHMETIC FOR COST-MINDED EXECUTIVES



1 + 1 = 1 BROWNHOIST
(LOCOMOTIVE- CRANE) DIESEL ELECTRIC LOCOMOTIVE-CRANE

Many railroads, steel mills and manufacturing plants have long been familiar with the powerful, efficient performance of Brownhoist Diesel Electric Locomotive-Cranes in handling bulk materials with magnet, hook or bucket. Brownhoist Cranes also perform equally well as switch engines because they are built with a specially designed travel generator, motor and axle reduction unit — the same equipment used in modern switching locomotives to provide high tractive power and rapid acceleration. These two dependable pieces of equipment in one husky unit mean greater versatility and economy of operation.

Brownhoist Cranes save you man hours, production time and money. The patented Monitor Type Cab and Clear-Vision Boom give the operator unlimited visibility in all directions and help him turn out a greater volume of work in less time. Sound, rugged construction plus a simplified mechanism and easy accessibility to all moving parts help keep maintenance and repair costs low.

Brownhoist Cranes are built in capacities from 25 tons to 80 tons for virtually every heavy duty materials handling operation. For complete information, consult your nearest Brownhoist representative or write us today.

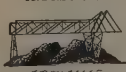
CLAM-SHELL BUCKET



250 TON WRECKING CRANE



COAL-ORE BRIDGE



CAR DUMPER

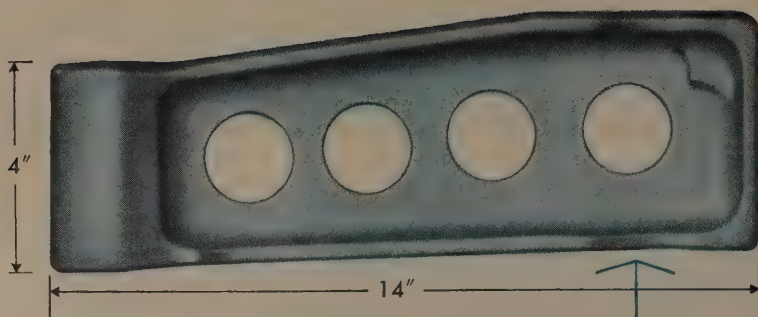


INDUSTRIAL BROWNHOIST CORPORATION • BAY CITY, MICHIGAN

DISTRICT OFFICES: New York, Philadelphia, Cleveland, San Francisco, Chicago; Canadian Brownhoist, Ltd., Montreal, Quebec • **AGENCIES:** Detroit, Birmingham, Houston, Los Angeles

BROWNHOIST

**BUILDS BETTER
CRANES**



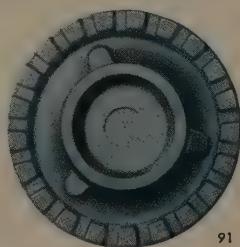
From Jet Bomber Parts
to Gas Range Burners

MUELLER BRASS CO.

Aluminum Forgings Save
Weight, Save Finishing Time
and Provide the Same
Strength as Steel

If weight and strength are important factors in your product, then Mueller Brass Co. forged aluminum parts may be your best bet. Mueller aluminum forgings weigh only $\frac{1}{3}$ as much as steel, yet they are approximately as strong. They make ideal parts for many applications and they are particularly desirable as parts for high speed rotating and oscillating machines because they reduce vibration and bearing loads, thus causing less wear on other parts. They possess good dimensional stability and retain their mechanical properties at high speeds and reasonable temperatures. The smooth, bright surfaces save machining time and eliminate costly finishing. Mueller Brass Co. can forge aluminum parts to your specifications in any practical size and shape from any of the standard or special alloys. Write us today for complete information.

MUELLER BRASS CO.
PORT HURON 19, MICHIGAN



NEW PRODUCTS and equipment

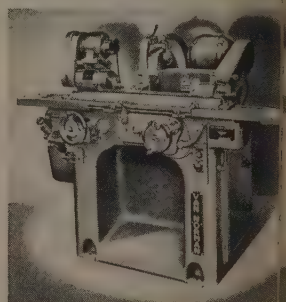
panying flux. Parts to be joined may be dipped into the paste. In Weld can be used with torch, furnace or soldering iron to join all metals except aluminum and magnesium. Eutectic Welding Alloys Corp., Dept ST, 172nd St. no Northern Blvd., Flushing 58, N.Y.

USE REPLY CARD—CIRCLE No. 7

Cylindrical Grinder

... fast work on small parts

Fast precision traverse or plunge cylindrical grinding of small parts on a production basis is possible on this model 418 grinder. The model is particularly adaptable for work on small parts in the toolroom or



job shops usually devoted to small or medium runs.

Recessed base permits operator to work in sitting position. All controls are grouped conveniently within reach from the operating position. Other features include a Pope wheel spindle, wheel slide, rapid retraction and automatic starting and stopping of headstock and table traverse. Machine is made with semiautomatic lubrication. Grinding wheel speeds are 1772 and 2067 rpm. Headstock work speeds range from 153 to 940 rpm. Van Norman Co., Dept ST, Springfield, Mass.

USE REPLY CARD—CIRCLE No. 8

Hard Facing Alloy

... resists high temperatures

Resistance to abrasion at high temperatures, ability to withstand attack by molten copper and improved welding characteristics are features claimed for CM-19 hard facing alloy. It can be applied with any good arc welding process. It will weld over itself and most fer-



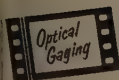
This new booklet shows you how Kodak Contour Projectors can simplify your inspection and measurement problems

Just off the press is the most informative booklet on Kodak Contour Projectors we've ever published.

- It shows by example and case history how you can inspect large parts, small parts, long parts, curved parts, delicate parts, complex parts, all sorts of parts on the Kodak Contour Projector.
- It gives details of both the Model 2A for precision micrometry, and the Model 3 for fast, routine gaging.
- It describes the features that make Kodak Contour Projectors adaptable to such a wide variety of work.
- It lists the accessories that extend their versatility.
- It discusses the measuring attachments that provide critical accuracy.

Whether your interest lies in toolroom measurement or production assembly and inspection, Kodak Contour Projectors will do the job quickly, completely, and accurately with little training of operators. For complete details, send for your complimentary copy of this new 12-page booklet. Just write to Eastman Kodak Company, Industrial Optical Sales Division, Rochester 4, N. Y.

the KODAK CONTOUR PROJECTOR



A new sound movie, Optical Gaging, shows how to simplify complex inspection problems. We'll tell you how to get it for a showing.

Kodak
TRADE-MARK

STANDARDS and SPECIALS by the Millions

THE FERRY CAP & SET SCREW CO.
2159 SCRANTON ROAD • • • CLEVELAND 13, OHIO



"SHINYHEADS"

America's Best Looking Cap Screw
Made of high carbon steel—AISI C-1038—to standards for Full Finished hexagon head cap screws—bright finish. Heads machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Tensile strength 95,000-110,000 p.s.i. Carried in stock.



"LO-CARBS"

Made of AISI C-1018 steel—bright finish. For use where heat treatment is not required and where ordinary hexagon heads are satisfactory. Hexagon heads die made to size—not machined. Points machine turned. Tensile strength 75,000-95,000 p.s.i. Carried in stock.



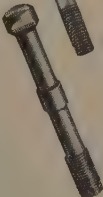
FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots—less burrs. Flat and chamfered machined point. Carried in stock.



"SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered machined point. Nut end, oval point. Land between threads shiny, bright, mirror finish. Carried in stock.



CONNECTING ROD BOLTS

Made of alloy steel—heat treated—threads rolled or cut—finished to extremely close thread and body tolerances—body ground where specified. Expertly made by the pioneers in producing connecting rod bolts by the cold upset process.



FERRY PATENTED ACORN NUTS

For ornamental purposes. Steel insert—steel covered. Finish: plain, zinc plated, cadmium plated. Size: 9/16", 3/4", 15/16" across the flats.



"HI-CARBS"

Heat Treated Black Satin Finish
Made of high carbon steel—AISI C-1038. Furnished with black satin finish due to double heat treatment. Hexagon heads die made, not machined. Points machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.



SET SCREWS

Square head and headless—cup point. Case hardened. Expertly made by the pioneers in producing Cup Point Set Screws by the cold upset process. Cup points machine turned. Carried in stock.



FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots—less burrs. Flat and chamfered machined point. Carried in stock.



ADJUSTING SCREWS

Valve tappet adjusting screws—Hexagon head style—to blue print specifications—hexagon head hard; polished if specified—threads soft to close tolerance—points machine turned; flat and chamfered.



SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



Tapped 1/4" to 3/4" inclusive. Cross section of Ferry patented acorn nut, showing how steel hexagon nut fits snugly into shell.

STANDARDS

carried by
LEADING
DISTRIBUTORS

* SPECIALS

furnished to
BLUE PRINT
SPECIFICATIONS

**WRITE FOR
INFORMATION**

SEND FOR SAMPLES

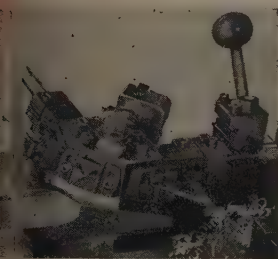
Pioneers and Recognized Specialists, Cold Upset Screw Products since 1907

PRODUCTS

and equipment

materials without cracking, aging or porosity. Coast Metals Dept. ST, Little Ferry, N. J. RY CARD—CIRCLE No. 9

Table V-Jaw Tool Holders
Capacity upped to 3/4-inch
Holding capacity of the adjustable V-jaw Brookfield tool holder is increased by addition of two models. The first, with reduced body dimensions, matches its predecessor's capacity for holding tools 1/64 to 1/2-inch. Second model sufficiently increased body



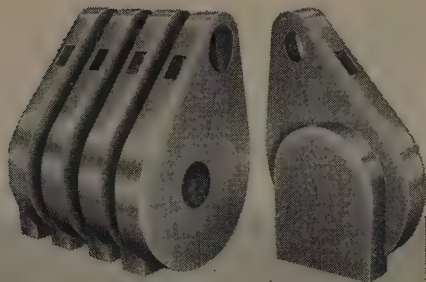
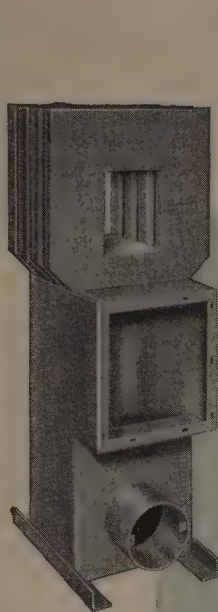
sections to hold any diameter from 1/16 to 3/4-inch. Shrink and V-jaw sections are currently parallel within 0.0005-inch. Runout is less than 0.001-inch per inch. Holders are used for all kinds of turret drilling, cutting and reaming machines, are also applicable for accurate positioning of second operation work. Brookfield Inc., Dept. ST, 755 Boylston St., Boston, Mass.

RY CARD—CIRCLE No. 10

Interchangeable Split Bushing
For use with sprockets

This interchangeable split tapered bushing is built principally for use with sprockets. Its bushing makes it possible to use the same sprockets on shafts from 1/2 inches diameter in steps of 1/16-inch. Need for re boring sprockets to fit particular shafts eliminated. Bushing grips the sprocket and the shaft

February 2, 1953

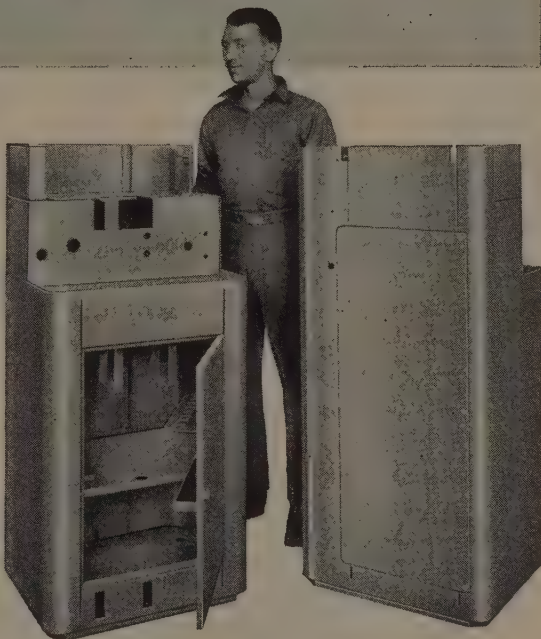


SHEET METAL FABRICATION

BY

KIRK AND BLUM

*Contract
Manufacturing
Facilities*



**Write for
NEW BULLETIN**

This 40 page comprehensive booklet shows typical examples of Kirk & Blum fabrication, complete facilities of plant and equipment for jobs ranging from one unit to thousands.

Whatever your requirements in sheet, plate and alloy fabrication, Kirk & Blum can produce for you . . . economically and quickly.

Complete facilities to 1/2" capacity for square and rotary shearing, braking, forming, rolling, punching, riveting, welding, grinding, drilling and finishing sheets and light plates and structurals.

For complete details, write for literature on fabrication facilities and experience or send prints to:

THE KIRK AND BLUM MANUFACTURING COMPANY
3200 FORRER STREET • CINCINNATI 9, OHIO

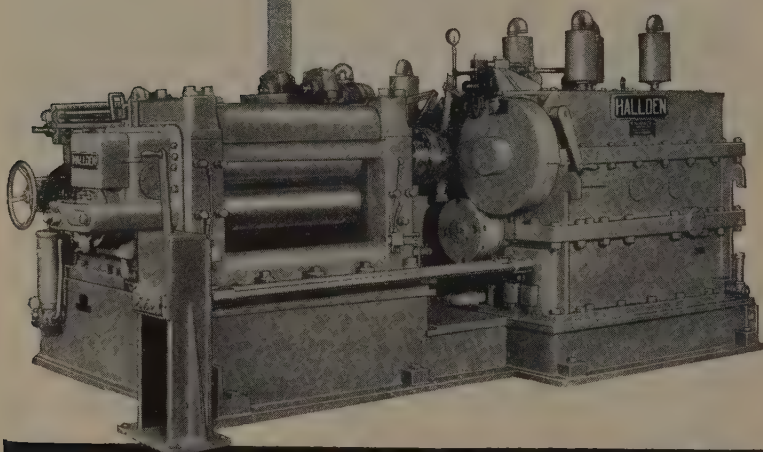
KIRK AND BLUM METAL FABRICATION

HALLDEN *Automatic Shears*

**flexible design...
cutting accuracy...**

**continuous feed...
rugged construction...**

**CONSULT HALLDEN —
the shearing
specialists!**



THE HALLDEN MACHINE COMPANY
THOMASTON, CONNECTICUT

Sales Representatives

The Wean Engineering Co., Inc., Warren, O. T. E. Dodds, Pittsburgh, Pa.
W. H. A. Robertson & Co., Ltd., Bedford, England

NEW PRODUCTS and equipment

with the equivalent of a press fit, even on shafts undersized as much as 0.005-inch.

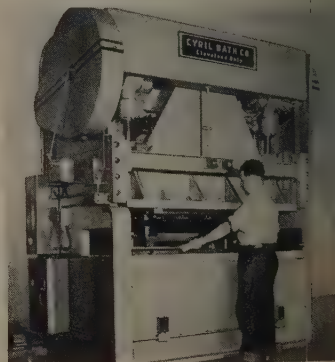
Sprockets are available in sizes from 1/2 to 1 1/4-inch pitch. With bushing and sprocket are of machine steel and can be case hardened. Boston Gear Works, 111 St., 14 Hayward St., Quincy 71, Mass.

USE REPLY CARD—CIRCLE No. 11

Press-Type Brake

... combines two functions

This press-type brake combines the principal functions of the press brake and stamping press into one machine, providing greater versatility and speed. Ram and bed are mounted flush with the holding



face, eliminating the practice of reaching under the ram.

Model has a standard 5-inch stroke, 14-inch shut height and 5-inch ram adjustment. Serial operation and end-feeding speed production by eliminating work transfer from one machine to another and avoiding tie-up of slower, larger draw presses. Machine is rated at 150 tons in each of 5 sizes 4, 6, 8, 10 and 12-foot bed lengths. Cyril Bath Co., Dept. ST, 697 Machinery Ave., Cleveland 3, O.

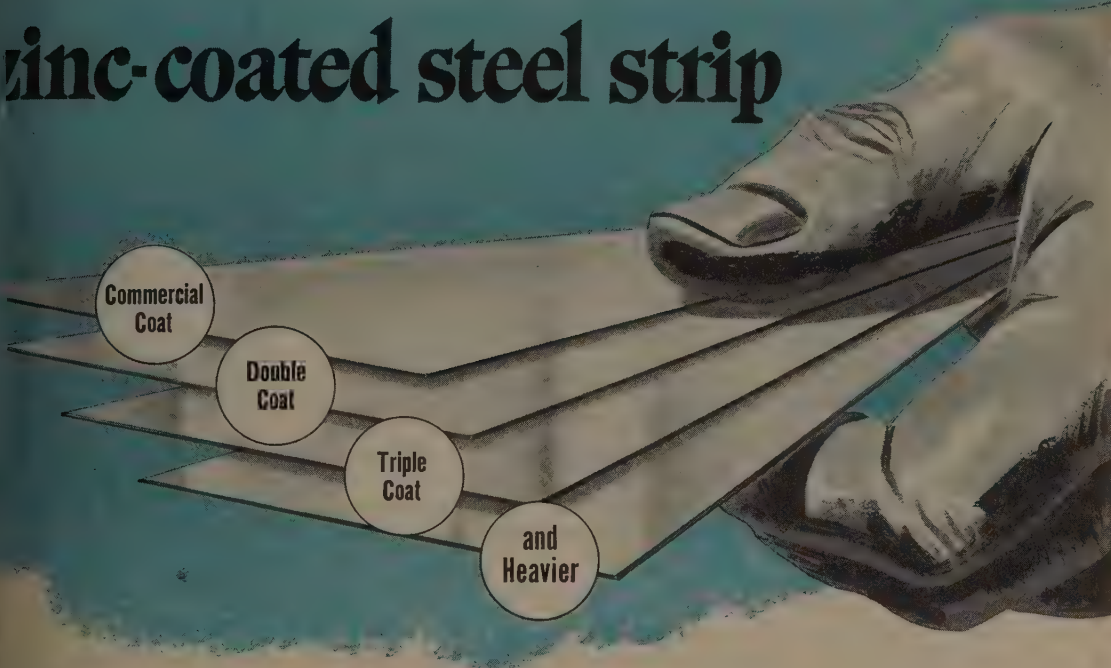
USE REPLY CARD—CIRCLE No. 12

Floor Coating

... decorates, protects floor

Colorflex Plus AWA gives a decorative and protective coating for floor surfaces and also resists the alkali content of cement. It is not affected by storage battery acid, lactic acid and cannot be

Now you can get heavier than commercial electro-plated zinc-coated steel strip



When your production standards demand extra protection from corrosion you can get it now with the *double, triple, and even heavier* electrolytic zinc coated Thomas Strip. This cold-rolled strip steel has a dense, uniformly distributed peel-proof zinc coating that adds substantially to product life and appearance. Edged edges can be furnished in most sizes. In addition to the extra heavy zinc coatings, Thomas has facilities to handle the heavier gauges of strip in coils or cut lengths—thickness limits up to .125" (full range .005" to .5")—widths 1/4" to approximately 22". Thomas electro-plated zinc strip may be formed, bent, and drawn without affecting the coating or causing flaking. Now it is available in

commercial, double, triple, and heavier coatings. It can be furnished bonderized in strip thicknesses of approximately .050 and lighter to provide extra adherence for paint, lacquer, and enamel. To learn how to put extra quality into your products with precoated Thomas Strip write today.

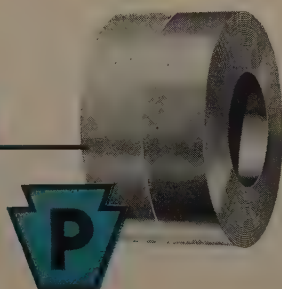
Cold-rolled strip steel electrolytically pre-coated with Zinc, Copper, Brass, Nickel, Lead-Alloy, and Chromium in Natural, Planished and Buffed Finishes—Hot Dip Tin and Lead Alloy Coated—Lacquer Coated in Colors—Annealed Spring Steel—Alloy Strip Steel—Uncoated Strip Steel. Carefully produced to your specifications.

Thomas Strip

a product of

Pittsburgh Steel Company

Thomas Strip Division • Warren, Ohio



NEW PRODUCTS and equipment

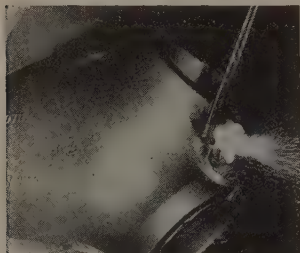
softened by water, mineral oils, grease or gasoline. Flexrock Co., Dept. ST, 3630 Filbert St., Philadelphia 1, Pa.

USE REPLY CARD—CIRCLE No. 13

Flame Washing Torch

... removes casting riser pads

Oxyacetylene flame washing torch removes riser pads from castings, effecting savings of time in cleaning operations as compared



with chipping and grinding. Torch design produces a washing, rather than grooving or cutting action. It is available with 20 or 75-degree

heads, and with two tip sizes.

A special powder cutting version of the torch has been developed for use on stainless and high-alloy steel castings. National Cylinder Gas Co., 840 N. Michigan Ave., Chicago 11, Ill.

USE REPLY CARD—CIRCLE No. 14

Extreme Pressure Lubricant

... protection against corrosion

Molyube Anti-Seize is a highly concentrated molybdenum disulphide compound that will not melt at temperatures above 600°F. It protects against corrosion besides preventing seizing and galling at bearing pressures over 100,000 psi. Bel-Ray Co. Inc., Dept. ST, Green Village Road, Madison, N. J.

USE REPLY CARD—CIRCLE No. 15

Rubber Transmission Belt

... for medium duty drives

Drivesall, a rubber transmission belt made with all rayon fabric, is designed for use on medium duty drives for fans, blowers, air com-

pressors, machine tools and similar types of machinery. Its improved strength is due to the nature of the rayon filaments which are formed in continuous lengths. B. F. Goodrich Co., Dept. ST, Akron, O.

USE REPLY CARD—CIRCLE No. 16

Load Pusher Attachment

... speeds unpaletteized handling

Fork truck load pusher attachment speeds handling of bulky unpaletteized loads such as tied



scrap. Other applications are found in loading highway carriers unable to accommodate truck because of floor load capacity or



GENERAL BLASTING CORPORATION

Complete blasting and demolition services available to all metal, oil, railroad, steamship and construction companies.

Expertly trained men with more than 20 years blasting experience.

Write, wire, or call today for information, advice and costs on your blasting problems.

"We blast anything—safely—anywhere!"

GENERAL BLASTING CORPORATION

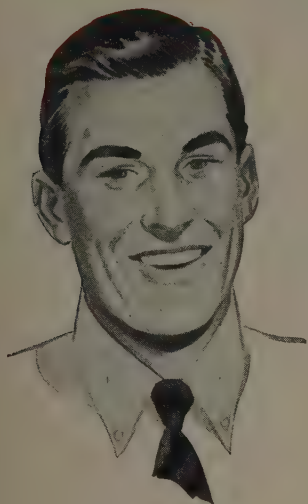
520 N. MICHIGAN AVE.

CHICAGO 11, ILLINOIS



PLANT: OAK LAWN, ILL.

Whitehall 4-083



TO AVOID AIR LINE TROUBLES

...Use the know-how of your
HANSEN Representative

THE HANSEN REPRESENTATIVE—

*Quick-Connective Couplings
Are His Business*

BUT SO ARE AIR LINE PROBLEMS

REPRESENTATIVES

BALTIMORE	LOS ANGELES
BIRMINGHAM	LOUISVILLE
CHICAGO	MILWAUKEE
CLEVELAND	MINNEAPOLIS
DALLAS	NEW ORLEANS
DAYTON	PITTSBURGH
DENVER	ROCHESTER
DETROIT	SAN FRANCISCO
FT. WAYNE	SAVANNAH
HARTFORD	SEATTLE
KANSAS CITY	ST. LOUIS

MONTREAL

VANCOUVER

Export Department: CLEVELAND

The main job of the Hansen representative is to supply you with exactly the right couplings for your particular requirements—where quick connection and disconnection will save you time and money.

There are, however, hundreds of plants that regularly make use of his experience to improve the overall performance of their fluid line circuits. Frequently when trouble arises, he can make suggestions which will effectively correct your difficulties.

From years of experience in close contact with many types of hook-ups, both large and small, he can advise you on how to make pipe connections for proper take-off, how much and in what direction to pitch your lines, and where and how to install drains—all designed to give you more efficient, trouble-free performance of your air-operated devices.

QUICK-CONNECTIVE FLUID LINE COUPLINGS

1. QUICK
CONNECTION AND
DISCONNECTION

2. INSTANT
AUTOMATIC FLOW
OR SHUT-OFF

One-Way Shut-Off



Two-Way Shut-Off



ALSO STRAIGHT-THROUGH QUICK-CONNECTIVE COUPLINGS
Send for Catalog!

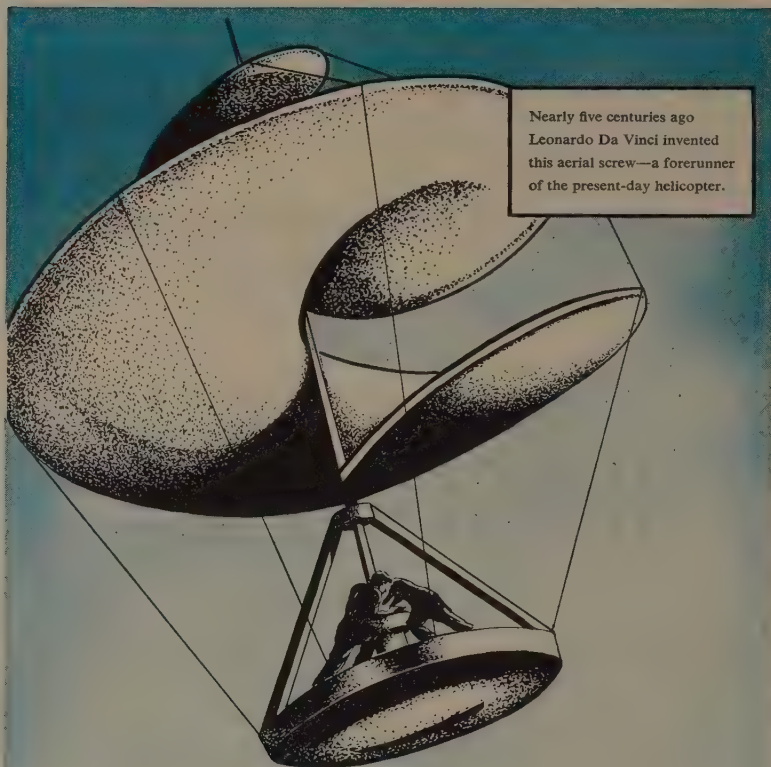


THE HANSEN

MANUFACTURING COMPANY

1031 WEST 150th STREET

CLEVELAND 11, OHIO



Nearly five centuries ago
Leonardo Da Vinci invented
this aerial screw—a forerunner
of the present-day helicopter.

*... out of this
came Aviation*

... an industry with imagination

To serve this great industry there are many manufacturers with imagination and vision. Indiana Gear is such a company—a group of able craftsmen equipped with the best of tools and machines—producing the finest in precision parts. At I.G.W. we accept the challenge of this and all other precision industries. We will match their visionary design with creative production.



Indiana Gear fabricated this large steel ring gear for the main transmission of a recent model Sikorsky Helicopter without grinding and without heat treat distortion. Originally, the helical teeth on this gear were ground, but a necessary power increase overloaded the part and it failed. It was assumed to be impossible to successfully heat treat the unground teeth, but I.G.W. produced the part without distortion and the gear operated successfully.



INDIANA GEAR

INDIANA GEAR WORKS, INC. • INDIANAPOLIS 7, INDIANA

NEW PRODUCTS and equipment

low overhead. No manual handling is involved.

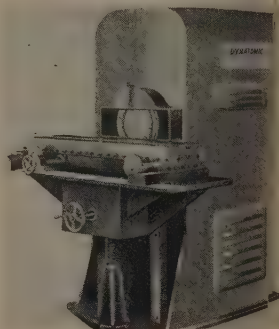
A free-floating jack actuates and equalizes action of two sets of levers that move pusher arms. Positive control over pushing pressure is available from the driver's position. Installation of pusher reduces load capacity only about 1 percent. Attachment is available on 2000 to 6000-pound trucks. Industrial Truck Division, Baker-Hulung Co., Dept. ST, 1230 W. 9th St., Cleveland 2, O.

USE REPLY CARD—CIRCLE No. 17

Carbide Tool Grinder

... no diamond wheels

Machine operates without use of diamond wheel for sharpening single-point tools, face mills and other carbide tools. It produces a superior finish at a reported considerable



increase in grinding speed. The grinder is capable of simultaneous rough and finish grinding; grinding shanks steel and carbide simultaneously.

The unit functions without special preparation of tool. Attachments are available for milling cutter, drill and reamer grinding. Other design features include automatic spindle and wheel balance and vapor spindle lubrication. Dynatomic Corp., Dept. ST, 7 S. Dearborn St., Chicago 3, Ill.

USE REPLY CARD—CIRCLE No. 18

Screw Tapping Attachment

... for standard drill press

An improved lead screw tapping attachment for use in a standard drill press takes the tapping load off the tap and leaves the tap free



a few pounds of copper...
or a truckload... **Call Chase**

Need just a few lengths of seamless brass tube? We'll be glad to hand them to you "over the counter." Or if your job calls for large quantities of brass or copper sheet, rod, wire or tube, we can speed it on its way to you. That's the kind of service you can get

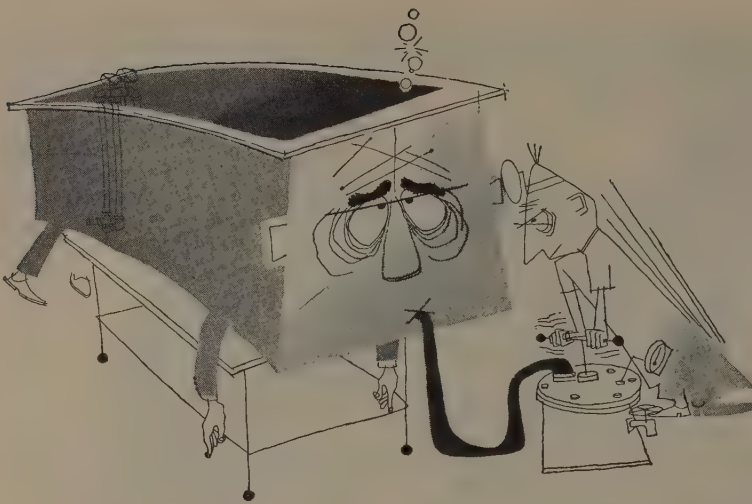
by calling your nearest Chase warehouse. We can supply you, subject to government controls, with hundreds of items for production, maintenance or repair. That's why it pays to "try Chase first" for anything in brass or copper.

Chase  **BRASS & COPPER**

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• The Nation's Headquarters for Brass & Copper

Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston†	Newark	Rechester†	(†sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	



has **coil-itis** * cramped
your production flow?

It's a waste of costly time to pump out the solution every time your process heating and cooling tanks get indigestion due to pipe coil troubles. You can save this cost and eliminate production bottlenecks by replacing the pipe coils with Platecoils. Platecoils can be removed and replaced **without dumping the solution**. They simplify maintenance and save hours of downtime. They heat or cool 50% faster and take 50% less space in the tank. As revolutionary as the new wonder drugs, Platecoils cure production troubles involving heat transfer . . . and give profits a shot in the arm.

Write for bulletin P72 today!

PLATECOILS SAVE 50% IN HEAT TRANSFER COSTS

PLATECOILS TRIPLE PRODUCTION



At Continental Motors Corp., 3 crankcase sections can be cleaned at one time when Platecoils are used while only one crank case can be cleaned with pipecoils in the tank. Ask about other case histories.

PLATECOIL

REPLACES PIPE COILS



*
Coil-itis — Diagnosed as tank heating and cooling problems. Platecoils — the prescription for solving pipe coil problems.

PLATECOIL DIVISION, KOLD-HOLD MANUFACTURING CO., LANSING 4, MICHIGAN

NEW PRODUCTS and equipment

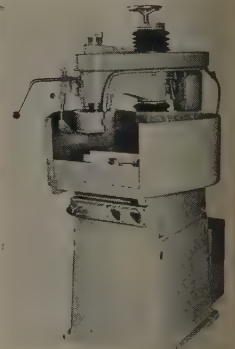
for thread cutting only. A precision rolled thread lead screw and an adjustable split-nut in which it works, carries the driving ad. Automatic Methods Inc., Dept. ST, 42 Walnut St., Newark 2, N. J.

USE REPLY CARD—CIRCLE No. 19

Surface Grinding Machine

. . . vertical spindle design

This surface grinder employs a vertical spindle and cup wheel. Work is placed on the table on magnetic chuck and cup wheel passed rapidly over the work by hand for



rough grinding. A hydraulic feed is then engaged for finish grinding.

Vertical adjustment of the spindle is accomplished by a large hand wheel; fine adjustment by a large-diameter graduated drum reading in 0.0004-inch. Dimension dresser is attached directly to the wheel housing. Machine is equipped with pump and piping for wet grinding. George Scherr Co. Inc., Dept. ST, 200 Lafayette St. New York 12, N. Y.

USE REPLY CARD—CIRCLE No. 20

Phosphoric Acid Cleaner

. . . for ferrous metals

Rust-Sol No. 123 is a phosphoric acid cleaner in concentrated form for ferrous metals. It can be ap

USE A
REPLY CARD

Just circle the corresponding number of any item in this section for more information.



INFORMATION

AVAILABLE FOR THE ASKING

Flexible Metal Hose

...ies Corp.—RT-6 and RT-8 metal hose is described as purpose tubing and ducting ge illustrated bulletin CMH- Hose is applicable for such uses as ducting, refrigeration and automotive exhausting.

Compressors

...r-Bessemer Corp.—Type M driven compressors from 300 hp are specified along with cutaway and installation ilons in 4-page bulletin M-65 A. scharge pressures are 80 to

ar Chamferer

...n Industrial Engineering Co. bed, and illustrated too, is de BM-2055 Burr-Master for ing zerol bevel gears. Where? t in 2055. Operating cycle, ounting fixtures, construction ail and specifications are de-

Bars & Structural Shapes

...Bros. Engineering Works—mp y offers two 4-page illustrat- bins, No. 2345 on double an- s for flats, bars and angles, d etin on "Structural Shapes." vers rolled or formed angles, hannels, bars and rail.

a Recording Equipment

...Engineers, Inc.—"Engineer- t Counts" is title of 4-page d brochure that outlines the s procedure in designing and anu turing electronic data re- quipment, data conversion it and automatic data print- pment.

Aluminum-Steel Bonding

...ild Engine & Airplane Corp., -Fir Div.—Complete details on a or the molecular bonding of a and its alloys to steel, iron r metals are given in 20- lustrated booklet entitled

"Al-Fin." Advantages of light weight, high heat conductivity, bearing properties, oxidation resistance and other properties of aluminum are combined with strength and fatigue resistance of ferrous metals.

74. Industrial X-Ray

Westinghouse Electric Corp.—Seven types of x-ray equipment for industrial applications are described in 4-page illustrated bulletin B-4787. Units covered include, stand, jib crane, high speed radiographic, mobile and wall mounted types.

75. Noise Barriers

Industrial Acoustics Co. — How standardized acoustic panels can be used to silence noise in many applications varying from power plant transformers to all type of machinery is described in this booklet.

76. V-Link Belting

Brammer Corp.—Sizes and prices; advantages of V-link belts compared with endless V belts; Brammer V-link versus other detachable V-link belting; selection table with power correction factors; and assembly, installation and maintenance instructions are covered in data book 205.

77. Foundry Overhead Handling

Forker Corp. — Photographs and layouts of combination Tramrail bridge-crane system in a grey iron foundry are found, along with descriptions and other information in 4-page brochure 107. System covered has added \$100,000 to one company's annual sales volume and it might do the same for you.

78. Steel-Toe Safety Shoes

Safety First Shoe Co.—Features of steel toe safety shoes which afford wearing comfort combined with foot safety are outlined in illustrated catalog. Cutaway drawings show cushioned innersoles of foam latex and other construction details. Both dress safety shoes for supervisory employees and work shoes are shown.

2-2-53

STEEL

Penton Building, Cleveland 13, Ohio

Please send literature or detailed information on subjects circled at left to—

1	11	21	31	41	51	61	71	81
2	12	22	32	42	52	62	72	82
3	13	23	33	43	53	63	73	83
4	14	24	34	44	54	64	74	84
5	15	25	35	45	55	65	75	85
6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
8	18	28	38	48	58	68	78	88
9	19	29	39	49	59	69	79	89
10	20	30	40	50	60	70	80	90

FIRST CLASS
Permit No. 36
(Sec. 34.9 P.L.&R.)
CLEVELAND, OHIO



BUSINESS REPLY CARD
No Postage Stamp Necessary if Mailed in the United States
— POSTAGE WILL BE PAID BY —

STEEL
Penton Building
Cleveland 13, Ohio

Readers Service Dept.

This card MUST be completely filled out. Please TYPE or PRINT

STEEL
Penton Building
Cleveland 13, Ohio

BUSINESS REPLY CARD
No Postage Stamp Necessary if Mailed in the United States
- POSTAGE WILL BE PAID BY -



1	11	21	31	41	51	61	71	81
2	12	22	32	42	52	62	72	82
3	13	23	33	43	53	63	73	83
4	14	24	34	44	54	64	74	84
5	15	25	35	45	55	65	75	85
6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
8	18	28	38	48	58	68	78	88
9	19	29	39	49	59	69	79	89
10	20	30	40	50	60	70	80	90

STEEL **2-2-53**

Penton Building, Cleveland 13, Ohio

Please send literature or detailed information on subjects circled at left to—

NAME	TITLE
COMPANY	
PRODUCTS MANUFACTURED	
ADDRESS	
CITY AND STATE	

This card must be completed and returned. Please type or print.

79. Rotating Parts Tester

Warren Brothers Roads Co., Mfg. Div.—Spintesting, the rotation of a part at high speeds to check mechanical perfection and vibration characteristics, is described, and equipment for it illustrated, in 4-page bulletin. Three models are covered, specs given and turbine rotor testing is outlined.

80. High Capacity Switches

Delta-Star Electric Co.—B-2P high capacity switches for outdoor service described in bulletin 5207 are available in 2000 to 5000-amp ratings for up to 34.5 kv service. Drawings, tables and other data aid in selection and application.

81. Clip Fasteners

Prestole Corp.—Illustrated 2-page data sheet 190-6-9-A presents standard sizes, application dimensions and other information on latching and nonlatching types of C and J clip fasteners for edge joining of metal panels. They are self-retaining and reusable.

82. Spring Steel

Lapham Hickey Co.—8-page illustrated "Stock List" covers complete line of standard and annealed spring steel. Prices, weights and sizes are given on blue tempered and polished, black oil tempered, feeler gage, cold rolled annealed, with hot rolled floor annealed spring steel stock.

83. Visual Inspection Units

Arthur S. La Pine & Co.—"Visual Inspection Instruments" is title of 8-page illustrated bulletin which contains brief descriptions and prices of line of inspection aids such as stereomicroscopes, illuminating magnifiers, pocket microscopes, magnifiers, comparators and miniature lamps.

84. Power Distribution

Feedrail Corp.—16-page illustrated catalog No. 30 describes and gives specs for 250, 375 and 500-amp heavy duty trolley busway electric power distribution systems. Components are shown, as are applications and mechanical features.

85. The ABC of VCI

Berlin & Jones Co., Industrial Packaging Div.—Here are two illustrated bulletins on Volatile Corrosion Inhibitors, used for protecting ferrous metals and aluminum from rust and corrosion without using gooey substances. Technical bulletin VT-1 is a general primer and answers questions on VCI, VPI and

VIP, while General Bulletin B-1 deals specifically with B-1 DryVapor Pack-velopes for protection of steel and aluminum.

86. Optical Level

F. T. Griswold Mfg. Co.—See for 4-page illustrated catalog 30 or you get a description of an optical precise level for measuring flatness, straightness and parallelism. Deviations from true horizontal can be measured to 0.00001-in. per in. of length. Use it on plates, roll joints and fixtures.

87. Air-Hardening Tool Steel

Joseph T. Ryerson & Son, Inc.—"Dy-Die Air Hardening Tool Steel" is title of 4-page illustrated bulletin which gives chemical analysis, hardening characteristics, wear resisting properties, instructions for heat treatment and typical applications. This general purpose tool steel is stable for drawing, blanking and finishing dies; gages; rolls; punches and similar uses.

88. Axle Load Scales

Howe Scale Co.—Weights of each axle of motor trucks and trailers can be checked by line of heavy duty axle load scales described and illustrated in 8-page folder 682. Features that mean more accurate weight control are described and construction details are shown.



EDITORIAL REPRINT:

89. Specifying Surface Finishes

Just how smooth is smooth? When roughness, smoothness or surface quality of a finish are under discussion, everyone has his own opinion. How Yale & Towne Mfg. Co. standardized surface finishes so that they could ascertain, without difference of opinion, when a desired finish is being produced is told in STEEL reprint "How You Can Specify Surface Finishes."

90. Castable Refractories

R. Russell Fayles, supt. of refractories and fuel, Lukens Steel Co., describes how suspended rammed or castable refractories are being substituted for sprung arch or suspended brick construction on open hearths in STEEL reprint headlined "Eastern Steelmaker Reduces Masonry Man-Hours." Materials possess high temperature capabilities, adequate strength and good expansion

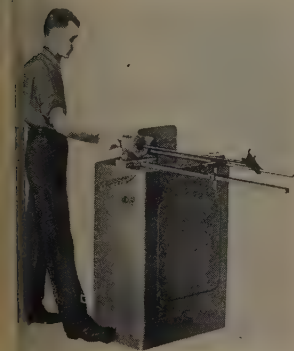
W PRODUCTS
and equipment

l either by brush on or immer-
method and rinsed off with
r water. The cleaner dissolves
ace salts, rust, scale, etc. from
uction pieces, neutralizes and
ates the surface with a slight
and iron phosphate coating
makes a base for paint. Klem
nicals Inc., Dept. ST, 14401
son, Dearborn, Mich.
EPLY CARD—CIRCLE No. 21

Power Rod Parter

no burr or distortion

Improved power rod parter cuts
and bars rapidly and accurate-
without burr and distortion, han-
work from 1/16 to 5/8-inch.
Principal improvement is replace-



of the air-operated power unit
a motor-driven flywheel. Fly-
drive operates at 180 strokes
minute, providing six times the
ing speed previously available.
Other advantage is greater
convenience, since the unit can be
lled without need for air pres-
sures, compressors, etc. Gage
ied as standard equipment
its separate operations of
g, ejecting and cutting to be
rned in a single working cy-
O'Neil-Irwin Mfg. Co., Dept.
119 Eighth Ave., Lake City,
ST
Mi

USE
LY CARD—CIRCLE No. 22

**USE A
REPLY CARD**

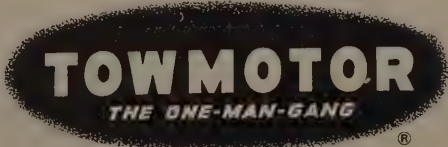
Just circle the corresponding
number of any item in this
section for more information.



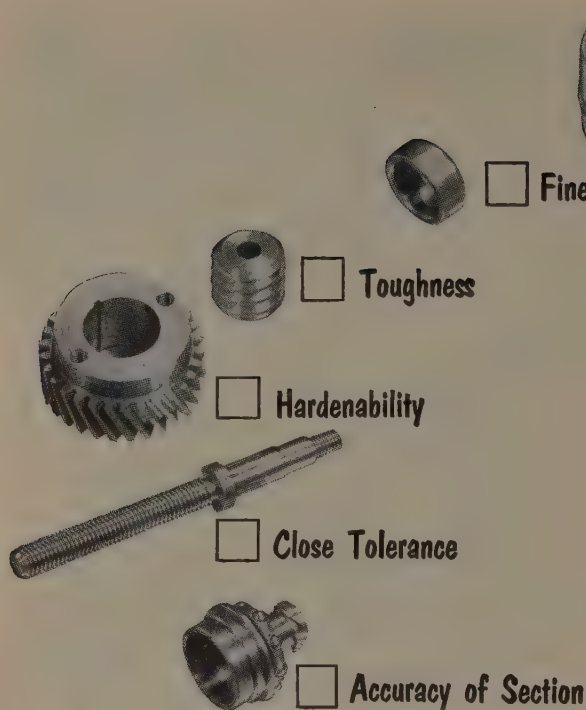
Rafter-high storage of bulky boxed cereals at Kellogg Co., Battle Creek, Michigan.



Put 'em up . . . stop lacking
storage capacity and overcrowding floor space . . . start
stacking capacity-loads and cash in on otherwise wasted
overhead space. Stacking is just one of countless handling
jobs you can count on Towmotor to *keep on* doing better.
"Man-Hour Thieves" tells the complete cost-cutting story.
Write for your copy and name of your nearest Towmotor
Representative. Towmotor Corporation, Div. 1602, 1226
E. 152nd St., Cleveland 10, Ohio.



FORK LIFT TRUCKS and TRACTORS
SINCE 1919
RECEIVING • PROCESSING • STORAGE • DISTRIBUTION



☐ High Strength

☐ Fine Surface

☐ Toughness

☐ Hardenability

☐ Close Tolerance

☐ Accuracy of Section

**WHAT ARE
YOUR
REQUIREMENTS?**

Republic Cold Drawn Alloy Bars deliver all 6 . . . plus

UNIFORM MACHINABILITY

Check the properties your steel parts require . . . add the economy of uniform machinability . . . and you have the answer to production and cost problems . . . Republic Cold Drawn Alloy Steel Bars.

High-speed automatics take full advantage of the cost-cutting qualities of Republic Bars. Designers can make full use of the high strength and uniform structure of these cold drawn bars. Production men can get the ideal combination of wearability and strength out of the uniform hardenability and toughness of the alloy steel.

And . . . Republic 3-Dimension Metallurgical Service focuses the experience of our Field, Mill, and Laboratory metallurgists on your production problems for the best answer with Republic Cold Drawn Alloy Steel Bars.

REPUBLIC STEEL CORPORATION

Alloy Steel Division • Massillon, Ohio

GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N.Y.

Republic COLD DRAWN
ALLOY STEEL BARS



MOVEMENT toward a balance between supply and demand in the entire steel market continues.

The movement at the moment is slow and evidences of it are spotty, but it is steady.

For some time, some items such as merchant products, small bars and merchant pig iron have been in adequate supply. But the demand for other products such as large bars, heavy plates and seamless tubing has exceeded supply. In some geographical areas the demand for a product has been heavier than in other sections. Trade observers have expected balances between supply and demand to arrive product by product and geographical area by geographical area. That pattern is prevailing.

WANTED: CUSTOMERS—Now, some premium price sellers of plates are looking for customers—indication of an easing in demand. High price sellers are always first to feel a drop in demand. While freight car builders are renewing pressure on steel plate they are shunning conversion material. They want plates but they don't feel the quotation warrants paying the high price of conversion steel.

LESS POPULAR—Foreign steel sheets which have been utilized to supplement insufficient supplies of domestic sheets are of reduced interest to buyers. Galvanized sheets, which a few months ago were extremely tight, are being ordered with less zeal. Products in which a balance between supply and demand was near or had already arrived show further signs of easing either supply-wise or price-wise. Light wall welded tubing prices are softening as secondary producers offer increased tonnage. These small mills are not only filling their own orders but are offering their surplus in the open market. Demand is limited largely to low carbon tubing.

PRICES CUT—On fabricated structural shapes, there's a trend to somewhat lower price quotations as competition sharpens. One area of evidence of improvement in steel

supplies is warehouses. Steady receipt of steel is helping them improve the balance in their stocks, although there's still ground to be gained. Reflecting an easing in pressure for steel, large buyers of steel who normally would depend on mills for supplies but who during the steel shortage relied also on warehouses are drifting away from the latter.

MOVING IN—At the same time the domestic steel supply-demand balance is improving, the offerings of foreign iron and steel are increasing. Growth of steel shipments from Japan has forced European steel almost off the West Coast market in galvanized sheets, black plate and plate.

On the East Coast, Dutch foundry iron is now available for first-quarter delivery at prices not much above the domestic ones.

SCRAP SOFTENS—Disappearance of frenzy from the steel market, along with good weather this winter, is contributing to a softening in demand, and in prices in some cases, for steelmaking scrap. The easing in scrap is most pronounced on the West Coast, where prices dropped below ceilings.

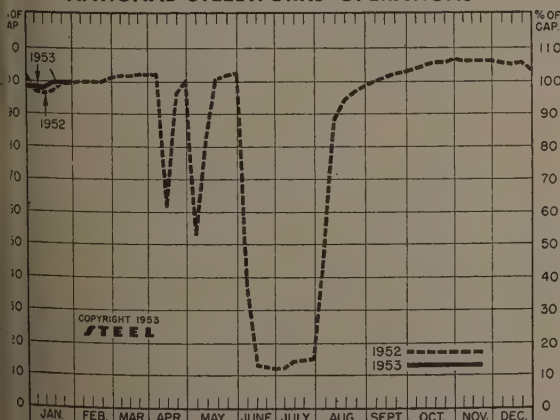
A clue that continued improvement in the balance between supply and demand of steel in the U. S. is expected is the belief of the National Production Authority that government controls on steel production and usage should end Apr. 1.

IN THE MEANTIME—Despite the signs of continued movement toward a balance between supply and demand throughout all steel products, consumers will still have to contend for awhile with shortages of the most-wanted products such as large bars, heavy plates, seamless tubing, wide flange beams, hot-rolled and cold-rolled carbon sheets and nickel-bearing grades of stainless steels.

Helping restore balance between supply and demand is the steel industry's high production rate.

In the week ended Jan. 31, production held at the preceding week's revised rate of 99.5 per cent of capacity, which yielded an all-time weekly record of 2,248,000 tons of steel for ingots and castings.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

Percentage of Capacity Engaged at Leading Production Points

	Week Ended Jan. 31	Change	Same Week 1952	1951
Pittsburgh	105	+ 0.5*	99	99
Chicago	105.5	0	102.5	100
Mid-Atlantic	95†	0	99	101
Youngstown	106	+ 8	106	106
Wheeling	101†	- 2.5	80	97
Cleveland	97.5†	- 2.5	99.5	76.5
Buffalo	106.5	0	104	104
Birmingham	98†	- 10	104	100
New England	95†	+ 5	87	82
Cincinnati	95.5	+ 2	103	104
St. Louis	101	0	86.5	90.5
Detroit	101.5	- 3*	105	109
Western	107	+ 1.5	95.5	103
Estimated national rate	99.5†	0*	99.5	101.5

*Change from preceding week's revised rate.
†Estimated rates are based on Jan. 1, 1953, capacities; others, on Jan. 1, 1952, capacities.
Weekly steelmaking capacity is estimated at 2,254,459 net tons in 1953; 2,077,040 tons in 1952; 1,999,034 tons in 1951.

Composite Market Averages

FINISHED STEEL PRICE INDEX:	Jan. 27	Jan. 20	Month	January
Bureau of Labor Statistics	1953	1953	Ago	Average
(1947-1949=100)	130.6	130.7	130.6	130.7

AVERAGE PRICES (BUREAU OF LABOR STATISTICS)
Week Ended Jan. 27, 1953

Units are 100 lb except where otherwise noted below in parentheses.
For complete description of products see insert following p. 28, STEEL,
Sept. 8, 1952.

Rails	\$3.775	Sheets, C.R. carbon	\$5.275
Track spikes	6.850	Sheets, galv.	6.845
Track bolts	9.958	Strip, C.R. carbon	5.100
The plates	4.775	Strip, C.R. stainless (lb)	0.325
Joint bars	4.925	Pipe, black, buttweld (100 ft)	760
Structural shapes	4.425	Pipe, galv. (100 ft)	887
Bars, tool steel (lb)	1.576	Boiler tubes (100 ft)	31.663
Bars, 3120 alloy	6.575	Tin plate (100 lb base box)	8.950
Bars, stainless (lb)	0.149	Terne plate (100 lb base box)	7.760
Bars, carbon	4.100	Wire, carbon, merchant	6.075
Bars, C.R. carbon	4.100	Wire, fence	6.88
Sheets, H.R. carbon	5.925	Nails (100 lb bags)	2.410
		Wire, barbed (80 rod spool)	5.920
		Woven wire fence (20 rod spool)	13.720

FINISHED PRICE INDEX, Weighted:					
Calculated by STEEL*	Jan. 29	Week	Month	Year	5 Yrs.
	1953	AgO	AgO	AgO	AgO
Index (1935-39 av.=100) ..	181.31	181.31	181.31	171.92	132.93
Index in cents per lb.	4.912	4.912	4.912	4.657	3.601

ARITHMETICAL PRICE COMPOSITES:
Calculated by STEEL*

Finished Steel NT	\$110.98	\$110.98	\$110.98	\$106.32	\$78.50
No. 2 Fdry, Pig Iron, GT ..	55.04	55.04	55.04	52.24	39.69
Basic Pig Iron, GT	54.86	54.86	54.86	52.16	39.219
Malleable Pig Iron, GT ..	55.77	55.77	55.77	53.27	40.30
Steelmaking Scrap, GT ...	43.00	43.00	43.00	43.00	41.08

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54;
of arithmetical price composites. STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS		Jan. 29	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Bars, H.R., Pittsburgh	3.95	3.95	3.95	3.70	2.90	
Bars, H.R., Chicago	3.95	3.95	3.95	3.70	2.90	
Bars, H.R., del. Philadelphia	4.502	4.502	4.502	3.223	3.30	
Bars, C.R., Pittsburgh	4.925	4.925	4.925	3.50	3.50	
Shapes, Std., Pittsburgh	3.85	3.85	3.85	3.65	2.80	
Shapes, Std., Chicago	3.85	3.85	3.85	3.65	2.80	
Shapes, del. Philadelphia	4.13	4.13	4.13	3.918	2.968	
Plates, Pittsburgh	3.90	3.90	3.90	3.70	2.95	
Plates, Chicago	3.90	3.90	3.90	3.70	2.95	
Plates, C.R., Philadelphia	4.35	4.35	4.35	4.15	3.65	
Plates, Sparrows Point, Md.	3.90	3.90	3.90	3.70	2.95	
Plates, Claymont, Del.	4.35	4.35	4.35	4.15	3.65	
Sheets, H.R., Pittsburgh	3.775	3.775	3.775	3.60-75	2.80	
Sheets, H.R., Chicago	3.775	3.775	3.775	3.60	2.80	
Sheets, C.R., Pittsburgh	4.575	4.575	4.575	3.55	3.55	
Sheets, C.R., Chicago	4.575	4.575	4.575	3.55	3.55	
Sheets, C.R., Detroit	4.775	4.775	4.775	3.75	3.50	
Sheets, Galv., Pittsburgh	5.075	5.075	5.075	4.80	3.95	
Strip, H.R., Pitts.	3.975-4.225	3.975-4.225	3.975-4.225	3.75-4.00	2.80	
Strip, H.R., Chicago	3.725	3.725	3.725	3.50	2.80	
Strip, C.R., Pittsburgh	5.10-5.80	5.10-5.80	5.10-5.80	4.65-5.35	3.55	
Strip, C.R., Chicago	5.35	5.35	5.35	4.90	3.85	
Strip, C.R., Detroit	6.03-6.25	6.03-6.25	6.03-6.25	5.55-6.00	4.75	
Wire, Basic, Pitts.	5.475-5.225	5.475-5.225	5.475-5.225	4.85-5.10	3.75	
Nails, Wire, Pittsburgh	6.35	6.35	6.35	5.90-6.20	4.70	
Tin plate box, Pittsburgh	\$8.95	\$8.95	\$8.95	\$8.70	\$6.70	

SEMIFINISHED					
Billets, forging, Pitts. (NT)	\$70.50	\$70.50	\$70.50	\$66.00	\$58.50
Wire rods, $\frac{3}{8}$ - $\frac{3}{4}$ ", Pitts. ..	4.425	4.425	4.425	4.10-30	3.175

PIG IRON, Gros Ton					
Bessemer, Pitts.	\$55.50	\$55.50	\$55.50	\$53.00	\$40.00
Basic Valley	54.50	54.50	54.50	52.00	39.00
Basic, del. Phila.	59.25	59.25	59.25	56.61	42.004
No. 2 Fdry, Pitts.	55.00	55.00	55.00	52.50	39.50
No. 2 Fdry, Chicago	55.00	55.00	55.00	52.50	39.00
No. 2 Fdry, Valley	55.00	55.00	55.00	52.50	39.50
No. 2 Fdry, del. Phila.	59.75	59.75	59.75	57.11	42.504
No. 2 Fdry, Birm.	51.38	51.38	51.38	48.88	37.88
No. 2 Fdry (Birm.) del. Cin.	58.93	58.93	58.93	55.49	40.74
Malleable, Valley	55.00	55.00	55.00	52.50	39.50
Malleable, Chicago	55.00	55.00	55.00	52.50	39.50
Charcoal, Lyles, Tenn.	55.00	55.00	55.00	52.50	39.50
Ferromanganese, Etna, Pa.	228.00	228.00	228.00	188.00	151.00

*F.o.b. cars, Pittsburgh.

SCRAP, Gross ton (including broker's commission)				
No. 1 Heavy Melt, Pitts.....	\$44.00	\$44.00	\$44.00	\$40.50
No. 1 Heavy Melt, E. Pa.	44.50	44.50	41.50	43.50
No. 1 Heavy Melt, Chicago. 42.50	42.50	42.50	42.50	39.25
No. 1 Heavy Melt, Valley.....	44.00	44.00	44.00	40.25
No. 1 Heavy Melt, Cleve.....	43.00	43.00	43.00	39.75
No. 1 Heavy Melt, Buffalo.....	43.00	43.00	43.00	43.50
Rolls, Re-rolling, Chicago.....	52.50	52.50	52.50	60.00
No. 1 Cast, Chicago.....	43.00	43.00	44.00	63.50

† F.o.b. shipping point.

COKE, Net Ton					
Beehive, Furn, Connlsvl. ...	\$14.75	\$14.75	\$14.75	\$14.75	\$12.00-13.00
Beehive, Fdry, Connlsvl.	17.00	17.00	17.00	17.50	14.00-15.50
Oven Fdry, Chicago	24.50	24.50	24.50	23.00	18.00

PIG IRON

F.o.b. furnace prices quoted under GCPR as reported to EEC. Minimum delivered prices are approximate and do not include Federal tax. Key to producing companies published on second following page.

PIG IRON, Gross Ton		Basic	No. 2 Foundry	Malleable	per ton
Bethlehem, Pa. B2		\$56.50	\$57.00	\$57.50	3.00
New York, del.			60.78	61.28	
Newark, del.		59.52	60.02	60.52	1.02
Philadelphia, del.		59.25	59.75	60.25	0.75
<i>Birmingham District</i>					
Alabama City, Ala. R2		50.88	51.38	...	...
Birmingham R2		50.88	51.38	...	...
Birmingham S8		...	51.38	...	...
Woodward, Ala. W15		50.35	51.38	...	...
Cincinnati, del.		...	58.93	...	...
<i>Cleveland District</i>					
Buffalo R2		54.50	55.00	55.50	...
Buffalo H1		54.50	55.00	55.50	...
Tonawanda, N.Y. W12		54.50	55.00	55.50	...
No. Tonawanda, N.Y. T9		...	55.00	55.50	...
Boston, del.		65.15	65.65	66.15	...
Rochester, N.Y. del.		57.52	58.02	58.52	...
Syracuse, N.Y. del.		58.62	59.12	59.62	...
<i>Chicago District</i>					
Chicago I-8		54.50	55.00	55.00	55.50
Gary, Ind. U5		54.50	...	55.00	...
Indiana Harbor, Ind. I-2		54.50	...	55.00	...
Chicago, Ill. W4		54.50	55.00	55.00	...
So. Chicago, Ill. Y1		54.50	55.00	55.00	...
So. Chicago, Ill. U5		54.50	...	55.00	55.50
Milwaukee, del.		56.67	57.17	57.17	57.67
Muskegon, Mich., del.		...	61.30	61.30	...
<i>Cleveland District</i>					
Cleveland A7		54.50	55.00	55.00	55.50
Cleveland R2		54.50	55.00	55.00	...
Akron, O., del. from Cleve.		57.11	57.61	57.61	58.11
Lorain, O. N3		54.50	...	55.00	55.50
Duluth I-3		...	...	55.00	...
Erie, Pa. I-3		54.50	55.00	56.90	55.90
Everett, Mass. E1		...	59.50	60.00	...
Frontana, Calif. K1		60.50	...	...	...
Grass City, Ill. G4		56.40	56.90	57.40	...
St. Louis, del. C1 (inc. tax)		57.15	57.65	58.15	...
Ironton, Utah C11		54.50	55.00	...	...
Geneva, Utah C11		54.50	55.00	...	...
OneStar, Tex. L6		50.50	*51.00	51.00	...
Minnequa, Colo. C10		56.50	57.50	57.50	...
Rockwood, Tenn. T3		...	...	58.50	...
<i>Pittsburgh District</i>					
Neveillesland, Pa. P6		...	55.00	55.00	55.50
Pitts., N.&S. sides, Ambridge		...	...	...	...
Alquippa, del.		...	56.37	56.87	56.87
McKees Rocks, del.		...	56.04	56.04	56.64
Lawrenceville, Ga. Homestead,		...	...	...	...
Wilmering, Monaca, del.		...	56.66	56.66	57.16
Verona, Trafford, del.		...	57.19	57.19	57.69
Brackenridge, del.		...	57.45	57.45	57.95
Bessemer, Pa. U5		54.50	...	55.00	55.50
Clairton, Rankin, So. Duquesne, Pa. U5		54.50	...	...	...
McKeesport, Pa. N3		54.50	...	...	55.50
Monessen, Pa. P7		56.50	...	...	...
Sharpville, Pa. S6		...	...	55.00	55.50
Steelton, Pa. B2		56.50	57.00	57.50	58.00
Swedeland, Pa. A3		58.50	59.00	59.50	60.00
Toledo, O. I-3		54.50	55.00	55.00	55.50
Cincinnati, del.		59.97	60.47	...	...
Troy, N.Y. R2		55.50	57.00	57.50	58.00
<i>Youngstown District</i>					
Hubbard, O. Y1		54.50	55.00	55.00	55.50
Youngstown Y1		54.50	55.00	55.00	...
Youngstown U5		54.50	...	...	55.50
Mansfield, O., del.		59.15	59.65	59.65	60.15

* Low phos. southern grade.

PIG IRON DIFFERENTIALS

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phosphorus iron on which it is 1.75-2.00%.

Phosphorus: Deduct 38 cents per ton for P content of 0.70% and over.
Manganese: Add 50 cents per ton for each 0.50% manganese over.

Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add \$2 per ton; each additional 0.25%, add \$1 per ton.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add \$1.50 for each 0.5%)

Jackson, O.	G2, J1	.....
Buffalo	H1	.....

ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton

ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 5%; \$1 each 0.5% Mn over 1%; \$2 per gross ton premium for 0.04% max
Niagara Falls, N.Y. P15

Keokuk, Iowa, Openhearth & Fdry, frt. allowed K2	94
Keokuk, OH & Fdry., 12½ lb piglets, 16% Si, frt. allowed	95
Wenatchee Wash. OH & Fdry, frt. allowed K2	92

CHARCOAL PIG IRON. Gross Ton

(Low phos semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)

Lyles, Tenn. T3

LOW PHOSPHORUS PIG IRON. Gross Ton

Cleveland, intermediate, A7	58
Steelton, Pa. B2	62
Philadelphia, delivered	66
Troy, N.Y. B2	65

Semifinished and Finished Steel Products

ill prices quoted under

GCPR as reported to STEEL,
Code numbers following mill

Jan. 29, 1953, cents per
pounds indicate producing company; key on next two pages.

Changes shown in italics

Carbon, Forging (NT)	
Calif. K1	\$31.00
Pa. U5	\$4.00
S24	\$75.00
Alloy (NT)	
Calif. K1	\$57.00
S5	\$65.00
Pa. C18	\$7.00
Pa. U5	\$7.00
BLOOMS & SLABS	
Rolling (NT)	
Pa. U5	\$59.00
Pa. U5	\$9.00
Ala. T2	\$9.00
Ala. T2	\$9.00
Calif. K1	\$9.00
U5	\$9.00
vn, Pa. B2	\$9.00
anna, N.Y. B2	\$9.00
Pa. U5	\$9.00
go, Ill. U5	\$9.00
esne, Pa. U5	\$9.00
on, Forging (NT)	
Pa. U5	\$70.50
R2	\$70.50
Pa. U5	\$70.50
o, R2	\$70.50
cken, Pa. A3	\$70.50
R7	\$70.50
Ala. T2	\$70.50
Calif. K1	\$89.50
U5	\$70.50
Ala. C11	\$70.50
S5	\$70.50
vn, Pa. B2	\$70.50
anna, N.Y. B2	\$70.50
des B3	\$89.50
Pa. U5	\$70.50
B3	\$89.50
go R2, U5, W14	\$70.50
esne, Pa. U5	\$70.50
A7	\$89.50
oy, Forging (NT)	
Pa. B2	\$76.00
R2	\$76.00
O R2	\$76.00
T7	\$76.00
cken, Pa. A3	\$83.00
R7	\$79.00
Calif. K1	\$95.00
U5	\$76.00
S5	\$84.00
rn, Ind. Y1	\$76.00
vn, Pa. B2	\$76.00
anna, N.Y. B2	\$76.00
des B3	\$96.00
O R2	\$76.00
Pa. C18	\$76.00
Pa. U5	\$76.00
go R2, U5, W14	\$76.00
esne, Pa. U5	\$76.00
O Y1	\$76.00
C17	\$76.00
SEAMLESS TUBE (NT)	
R2	\$87.50
O R2	\$87.50
Calif. K1	\$108.50
U5	\$87.50
O R2	\$87.50
go, Ill. R2	\$87.50
esne, Pa. U5	\$87.50
S (NT)	
Calif. K1	\$93.18
Pa. U5	\$3.65
Pa. U5	\$3.55
wn R2, U5	\$3.55
D5	
City, Ala. R2	\$4.70
W12	\$4.325
A7	\$4.325
Ala. T2	\$4.325
Calif. K1	\$1.25
S5	\$4.725
Pa. B2	\$4.325
n7	\$4.325
ly, Mo. S5	\$4.665
B3	\$5.125
Pa. C10	\$4.575
anda, N.Y. B1	\$4.525
Calif. C11	\$4.975
th, O. P12	\$4.525
n, J. R5	\$4.425
Ill. R2	\$4.425
Ill. M2, B2	\$4.425
O. Y1	\$4.325
Calif. C11	\$4.325
7, Mass. A7	\$4.625
FEEL PILING	
Ind. I-2	\$4.675
anna, N.Y. B2	\$4.675
Pa. U5	\$4.675
go, Ill. U5	\$4.675

STRUCTURALS	
Carbon Steel Stand. Shapes	
AlabamaCity, Ala. R2	\$3.85
Albuquerque, Pa. J5	\$3.85
Bessemer, Ala. T2	\$3.85
Clairton, Pa. B2	\$3.90
Field, Ala. T2	\$3.85
Fontana, Calif. K1	\$4.50
Gary, Ind. U5	\$3.85
Geneva, Utah C11	\$3.85
Houston S5	\$4.25
Ind. Harbor, Ind. I-2	\$3.85
Johnstown, Pa. B2	\$3.90
KansasCity, Mo. S5	\$4.45
Lackawanna, N.Y. B2	\$3.90
Los Angeles B3	\$4.45
Minneapolis, Colo. C10	\$4.30
Munhall, Pa. U5	\$3.85
Niles, Calif. (22) P1	\$4.56
Phoenixville, Pa. P4	\$6.10
Seattle B3	\$4.50
So. Chicago, Ill. U5	\$4.40
So. San Francisco B3	\$4.40
Torrance, Calif. C11	\$4.45
Weirton, W. Va. W6	\$4.10
Wide Flange	
Bethlehem, Pa. B2	\$3.90
Clairton, Pa. U5	\$3.85
Fontana, Calif. K1	\$5.05
Johnstown, Pa. B2	\$3.90
Lackawanna, N.Y. B2	\$3.90
Munhall, Pa. U5	\$3.85
So. Chicago, Ill. U5	\$3.85
Alloy Stand. Shapes	
Clairton, Pa. U5	\$4.725
Fontana, Calif. K1	\$5.925
Gary, Ind. U5	\$4.725
Munhall, Pa. U5	\$4.725
So. Chicago, Ill. U5	\$4.725
Albuquerque, Pa. J5	\$5.80
Bessemer, Ala. T2	\$5.80
Bethlehem, Pa. B2	\$5.80
Clairton, Pa. U5	\$5.80
Field, Ala. T2	\$5.80
Fontana, Calif. K1	\$6.45
Gary, Ind. U5	\$5.80
Geneva, Utah C11	\$5.80
Ind. Harbor, Ind. I-2	\$6.30
Ind. Harbor, Ind. I-2	\$6.30
Johnstown, Pa. B2	\$5.80
Lackawanna, N.Y. B2	\$5.80
Los Angeles B3	\$6.35
Munhall, Pa. U5	\$5.80
Seattle B3	\$6.40
So. Chicago, Ill. U5	\$5.80
So. San Francisco B3	\$6.30
Struthers, O. Y1	\$6.30
H.S., L.A. Wide Flange	
Albuquerque, Pa. J5	\$5.50
Bethlehem, Pa. B2	\$5.80
Lackawanna, N.Y. B2	\$5.80
Munhall, Pa. U5	\$5.75
So. Chicago, Ill. U5	\$5.75
Munhall, Pa. U5	\$5.85
Seattle B3	\$5.95
Sharon, Pa. S3	\$5.95
So. Chicago, Ill. U5	\$5.95
SparrowsPoint, Md. B2	\$5.95
Warren, O. R2	\$5.95
Youngstown Y1	\$6.45
Youngstown U5	\$5.95
PLATES, Open-Heath Alloy	
Claymont, Del. C22	\$5.35
Covestville, Pa. L7	\$5.75
Conshohocken, Pa. A3	\$5.50
Fontana, Calif. K1	\$6.25
Gary, Ind. U5	\$5.25
Johnstown, Pa. B2	\$5.25
Munhall, Pa. U5	\$5.25
Sharon, Pa. S3	\$5.70
So. Chicago, Ill. U5	\$5.25
SparrowsPoint, Md. B2	\$5.25
FLOOR PLATES	
Cleveland J5	\$4.95
Conshohocken, Pa. A3	\$4.95
Ind. Harbor, Ind. I-2	\$4.95
Munhall, Pa. U5	\$4.95
So. Chicago, Ill. U5	\$4.95
PLATES, Ingot Iron	
Ashland, c.l. (15) A10	\$4.15
Cleveland, c.l. R2	\$4.50
Warren, O., c.l. R2	\$4.50

PLATES, Carbon Steel	
AlabamaCity, Ala. R2	\$3.90
Albuquerque, Pa. J5	\$3.90
Ashland, Ky. (15) A10	\$3.90
Bessemer, Ala. T2	\$3.90
Clairton, Pa. U5	\$3.90
Claymont, Del. C22	\$4.35
Cleveland J5, R2	\$3.90
Covestville, Pa. L7	\$4.35
Conshohocken, Pa. A3	\$4.35
Ecorse, Mich. G5	\$4.45
Field, Ala. T2	\$3.90
Fontana, Calif. (30) K1	\$4.55
Gary, Ind. U5	\$3.90
GraniteCity, Ill. G4	\$4.60
Geneva, Utah C11	\$3.90
Houston S5	\$4.30
Ind. Harbor, Ind. I-2, Y1	\$3.90
Johnstown, Pa. B2	\$3.90
Lackawanna, N.Y. B2	\$3.90
Minneapolis, Colo. C10	\$4.70
Munhall, Pa. U5	\$3.90
Pittsburgh J5	\$3.90
Seattle B3	\$4.15
Sharon, Pa. S3	\$4.15
So. Chicago, Ill. U5, W14	\$3.90
SparrowsPoint, Md. B2	\$3.90
Staubenville, O. W10	\$3.90
Warren, O. R2	\$3.90
Weirton, W. Va. W6	\$4.20
Youngstown R2, U5, Y1	\$3.90
PLATES, Carbon A.R.	
Fontana, Calif. K1	\$5.70
Geneva, Utah C11	\$5.05
PLATES, Wrought Iron	
(Add 4.7% to base and extras)	
Economy, Pa. B14	\$8.60
BARS, Hot-Rolled Carbon	
AlabamaCity, Ala. R2	\$3.95
Albuquerque, Pa. J5	\$3.95
Alton, Ill. U5	\$4.50
Atlanta, Ga. A11	\$4.50
Bessemer, Ala. T2	\$3.95
Buffalo R2	\$3.95
Canton, O. R2	\$3.95
Clairton, Pa. U5	\$3.95
Cleveland R2	\$3.95
Ecotort R7	\$4.10
Ecorse, Mich. G5	\$4.30
Emeryville, Calif. J7	\$4.70
Fairfield, Ala. T2	\$3.95
Fontana, Calif. K1	\$4.65
Gary, Ind. U5	\$3.95
Houston S5	\$4.35
Ind. Harbor, Ind. I-2 Y1	\$3.95
Johnstown, Pa. B2	\$3.95
KansasCity, Mo. S5	\$4.55
Lackawanna, N.Y. B2	\$3.95
Los Angeles B3	\$4.65
Milton, Pa. B6	\$4.55
Minneapolis, Colo. C10	\$4.40
Niles, Calif. P1	\$4.65
N. Tonawanda, N.Y. B11	\$3.95
Pittsburgh, Calif. C11	\$4.65
Pittsburgh J5	\$3.95
Seattle B3, N14	\$4.70
So. Duquesne, Pa. U5, W14	\$3.95
So. San Fran., Calif. B3	\$4.70
Sterling, Ill. N15	\$4.55
Struthers, O. Y1	\$3.95
Torrance, Calif. C11	\$4.65
Weirton, W. Va. W6	\$4.10
Youngstown R2, U5	\$3.95
BAR SIZE ANGLES; S. Shapes	
Albuquerque, Pa. J5	\$3.95
Atlanta A11	\$4.50
Niles, Calif. P1	\$4.65
San Francisco S7	\$5.00
BAR SIZE ANGLES; H.R. CARBON	
Bethlehem, Pa. B2	\$4.15
BARS, Hot-Rolled Alloy	
Albuquerque, Pa. B2	\$4.675
Buffalo R2	\$4.675
Canton, O. R2	\$4.675
Canton, O. T7	\$4.72
Clairton, Pa. U5	\$4.675
Detroit R7	\$4.825
Ecorse, Mich. G5	\$5.025
Fontana, Calif. K1	\$5.675
Gary, Ind. U5	\$5.075
Houston S5	\$5.075
Ind. Harbor, Ind. I-2, Y1	\$4.675
Johnstown, Pa. B2	\$4.675
Lackawanna, Mo. S5	\$5.275
Lackawanna, N.Y. B2	\$4.675
Los Angeles B3	\$5.275
Massillon, O. R2	\$4.675
Midland, Pa. C18	\$4.675
So. Duquesne, Pa. U5	\$4.675
Struthers, O. Y1	\$4.675
Warren, O. C17	\$4.675
Youngstown U5	\$4.675
BAR SHAPES, Hot-Rolled Alloy	
Clairton, Pa. U5	\$4.925
Gary, Ind. U5	\$4.925
Youngstown U5	\$4.925

BARS & SMALL SHAPES, H. R.	
High-Strength Low-Alloy	
Albuquerque, Pa. J5	\$5.925
Bessemer, Ala. T2	\$5.925
Bethlehem, Pa. B2	\$5.925
Clairton, Pa. U5	\$5.925
Cleveland R2	\$5.925
Ecorse, Mich. G5	\$6.675
Fairfield, Ala. T2	\$5.925
Fontana, Calif. K1	\$6.675
Gary, Ind. U5	\$5.925
Ind. Harbor, Ind. I-2	\$5.925
Indiana Harbor, Ind. Y1	\$6.425
Johnstown, Pa. B2	\$5.925
Lackawanna, N.Y. B2	\$5.925
Los Angeles B3	\$6.625
Pittsburgh J5	\$5.925
Seattle B3	\$6.675
So. Duquesne, Pa. U5	\$5.925
So. San Francisco B3	\$6.675
Struthers, O. Y1	\$6.425
Youngstown U5	\$5.925
BARS, Cold-Finished Carbon	
Ambridge, Pa. W18	\$4.925
Beaver Falls, Pa. R2	\$4.925
Beaver Falls, Pa. M12	\$4.925
Camden, N.J. P13	\$4.925
Carnegie, Pa. C12	\$4.925
Chicago B5	\$4.925
Chicago W18	\$4.925
Cleveland A7, C20	\$4.925
Detroit P17, R7	\$5.075
Donora, Pa. A7	\$4.925
Elyria, O. W8	\$4.925
Franklin Park, Ill. N5	\$4.925
Gary, Ind. R2	\$4.925
Green Bay, Wis. P7	\$4.925
Hammond, Ind. L2, M13	\$4.925
Hartford, Conn. R2	\$4.925
Los Angeles R2	\$6.375
Mansfield, Mass. B5	\$4.925
Massillon, O. R2, R8	\$4.925
Monaca, Pa. S17	\$4.925
Newark, N.J. W18	\$4.925
Plymouth, Mich. P5	\$5.175
Pittsburgh J5	\$4.925
Putnam, Conn. W18	\$4.925
Readyville, Mass. C14	\$4.925
St. Louis, Mo. M5	\$5.30
So. Chicago, Ill. W14	\$4.925
Spring City, Pa. K3	\$4.925
Struthers, O. Y1	\$4.925
Waukegan, Ill. A7	\$4.925
Youngstown Y1	\$4.925
Youngstown F3	\$4.925
BARS, Cold-Finished Alloy	
Ambridge, Pa. W18	\$6.00
Beaver Falls, Pa. M12	\$6.00
Bethlehem, Pa. B2	\$6.00
Buffalo B5	\$6.00
Camden, N.J. P13	\$6.40
Canton, O. R2	\$6.00
Canton, O. T7	\$5.99
Carnegie, Pa. C12	\$6.00
Chicago B5	\$6.00
Chicago W18	\$6.00
Cleveland A7	\$6.05
Cleveland C20	\$6.00
Detroit P17, R7	\$6.15
Donora, Pa. A7	\$6.05
Elyria, O. W8	\$6.00
Gary, Ind. R2	\$6.00
Hammond, Ind. L2, M13	\$6.00
Hartford, Conn. R2	\$6.00
Lackawanna, N.Y. B2	\$6.00
Mansfield, Mass. B5	\$6.45
Massillon, O. R2, R8	\$6.00
Midland, Pa. C18	\$6.00
Monaca, Pa. S17	\$6.00
Newark, N.J. W18	\$6.35
Plymouth, Mich. P5	\$6.20
So. Chicago, Ill. R2, W14	\$6.00
Spring City, Pa. K3	\$6.00
Struthers, O. Y1	\$6.00
Warren, O. C17	\$6.00
Waukegan, Ill. A7	\$6.05
Worcester, Mass. A7	\$6.35
Youngstown Y1	\$6.00
Youngstown F3	\$6.00
BARS, Reinforcing (Fabricators)	
AlabamaCity, Ala. R2	\$3.95
Atlanta A11	\$4.50
Buffalo R2	\$3.95
Canton, O. R2	\$3.95
Emeryville, Calif. J7	\$4.70
Fairfield, Ala. T2	\$3.95
Fontana, Calif. K1	\$4.65
Gary, Ind. U5	\$3.95
Houston S5	\$4.35
Ind. Harbor, Ind. I-2, Y1	\$3.95
Johnstown, Pa. B2	\$3.95
Lackawanna, N.Y. B2	\$3.95
Los Angeles B3	\$4.65
Milton, Pa. B6	\$4.55
Minneapolis, Colo. C10	\$4.75
Niles, Calif. P1	\$4.65
Pittsburgh J5	\$4.65
Pittsburgh J5	\$3.95
Sand Springs, Okla. S5	\$4.85

Seattle B3, N14	\$4.70
So. Chicago, Ill. R2	\$3.95
So. Duquesne, Pa. U5	\$3.95
So. San Francisco B3	\$4.70
SparrowsPoint, Md. B2	\$3.95
Sterling, Ill. (1) N15	\$4.70
Struthers, O. Y1	\$3.95
Torrance, Calif. C11	\$4.65
Youngstown R2, U5	\$3.95
BARS, Reinforcing	
(Fabricated; to consumers)	
Huntington, W. Va. W7	\$5.50
Johnstown, 1/4" B2	\$5.25
Los Angeles B3	\$5.45
Marion, O. P11	\$5.25
Seattle B3, N14	\$5.80
So. San Francisco B3	\$5.45
SparrowsPt. 1/4" B2	\$5.25
Williamstown, Pa. S19	\$5.35
RAIL STEEL BARS	
ChicagoHts. (3.4) C2	\$4.75
ChicagoHts. (3.4) I-2	\$4.75
Franklin, Pa. (3.4) F5	\$4.75
Huntington, W. Va. (3.4) W7	\$5.10
Hunting, W. Va. (3.4) W7	\$5.10
Moline, Ill. (3) R2	\$4.05
Tonawanda (3.4) B12	\$5.00
Williamsport (3) S19	\$5.25
Williamsport (4) S19	\$5.35
BARS, Wrought Iron	
(Add 4.7% to base and extras)	
Economy, Pa. (S.R.) B14	\$9.60
Economy, Pa. (D.R.) B14	\$11.90
Economy (Stabylot) B14	\$12.20
McK. Rks. (Stabylot) L5	\$14.50
McK. Rks. (S.R.) L5	\$9.60
McK. Rks. (D.R.) L5	\$13.00
SHEETS, Hot-Rolled Steel	
(18 gage and heavier)	
AlabamaCity, Ala. R2	\$3.775
Ashland, Ky. (8) A10	\$3.775
Bethlehem, Pa. B2	\$3.775
Cleveland J5, R2	\$3.775
Conshohocken, Pa. A3	\$4.475
Detroit M1	\$4.175
Ecorse, Mich. G5	\$3.975
Fairfield, Ala. T2	\$3.775
Fontana, Calif. K1	\$4.825
Gary, Ind. U5	\$3.775
Geneva, Utah C11	\$3.875
GraniteCity, Ill. G4	\$4.30
Ind. Harbor, Ind. I-2, Y1	\$3.775
Irvin, Pa. U5	\$3.775
Lackawanna, N.Y. B2	\$3.775
Munhall, Pa. U5	\$3.775
Niles, O. N12	\$5.425
Pittsburgh, Calif. C11	\$4.475
Pittsburgh J5	\$3.775

MARKET PRICES

SHEETS, Cold-Rolled Steel (Commercial Quality)	
Butler, Pa. A10	4.575
Cleveland J5, R2	4.575
Ecorse, Mich. G5	4.775
Fairfield, Ala. T2	4.575
Follansbee, W.Va. F4	5.575
Fontana, Calif. K1	5.575
Gary, Ind. U5	4.575
Granite City, Ill. G4	5.575
Ind. Harbor, Ind. I-2, Y1	4.575
Irvin, Pa. U5	4.575
Lackawanna, N.Y. B2	4.575
Middletown, O. A10	4.575
Pittsburgh, Calif. C11	5.525
Pittsburgh J5	4.575
SparrowsPoint, Md. B2	4.575
Staubenville, O. W10	4.575
Warren, O. R2	4.575
Weirton, W.Va. W6	4.575
West Leechburg, Pa. A4	5.45
Youngstown Y1	4.575

SHEETS, Galv'd No. 10 Steel	
Alabama City, Ala. R2	5.075
Ashland, Ky. (8) A10	5.075
Canton, O. R2	5.075
Delplos, O. N16	5.675
Dover, O. R1	5.775
Fairfield, Ala. T2	5.075
Gary, Ind. U5	5.075
Granite City, Ill. G4	5.075
Ind. Harbor, Ind. I-2	5.075
Irvin, Pa. U5	5.075
Kokomo, Ind. (13) C16	5.475
Martins Ferry, O. W10	5.075
Niles, O. N12	6.275
Pittsburgh, Calif. C11	5.825
SparrowsPoint, Md. B2	5.075
Staubenville, O. W10	5.075
Terrance, Calif. C11	5.525
Weirton, W.Va. W6	5.075

SHEETS, Galvanized No. 10, High-Strength Low-Alloy	
Irvin, Pa. U5	7.625
SparrowsPoint (39) B2	7.775

SHEETS, Galvannealed Steel	
Canton, O. R2	5.625
Irvin, Pa. U5	5.625
Kokomo, Ind. (13) C16	6.025
Niles, O. N12	6.525

SHEETS, ZINGRIP Steel No. 10	
Butler, Pa. A10	5.325
Middletown, O. A10	5.325

SHEETS, Electro Galvanized	
Cleveland R2 (28)	5.925
Niles, O. R2 (28)	5.925
Weirton, W.Va. W6	5.775

SHEETS, Well Casing	
Fontana, Calif. K1	5.34

BLUED Stock, 29 ga.	
Yorkville, O. W10	7.00
Follansbee, W.Va. F4	7.10
Follansbee (23) F4	6.425

SHEETS, Enameling Iron	
Ashland, Ky. (8) A10	4.925
Cleveland R2	4.925
Gary, Ind. U5	4.925
Granite City, Ill. G4	5.625
Ind. Harbor, Ind. I-2	4.925
Irvin, Pa. U5	4.925
Middletown, O. A10	4.925
Youngstown Y1	4.925

TIN PLATE, Electrolytic (Base Box)	
Alliquippa, Pa. J5	7.40
Fairfield, Ala. T2	7.50
Gary, Ind. U5	7.40
Granite City, Ill. G4	7.60
Indiana Harbor, Ind. I-2, Y1	7.40
Irvin, Pa. U5	7.40
Niles, O. R2	7.40
Pittsburgh, Calif. C11	8.15
SparrowsPoint, Md. B2	7.50
Weirton, W.Va. W6	7.40
Yorkville, O. W10	7.40

SHEETS, SILICON, H.R. or C.R. (22 Ga.)	
COILS (Cut lengths 1/2 cut lengths)	
Beechbottom W10 (cut lengths)	7.85
Brackenridge, Pa. A4	8.35
Granite City, Ill. G4 (cut lengths)	8.55
Indiana Harbor, Ind. I-2	7.55
Mansfield, O. E6 (cut lengths)	7.20
Niles, O. N12 (cut lengths)	7.05
Vandergrift, Pa. U5	7.85
Warren, O. R2	7.55
Zanesville, O. A10	7.85

SHEETS, SILICON (22 Ga. Base)	
COILS (Cut Length 1/2 lower)	
Transformer Grade	72
Beechbottom W10 (cut lengths)	10.45
Brackenridge, Pa. A4	10.95
Vandergrift, Pa. U5	10.95
Warren, O. R2	10.95
Zanesville, O. A10	10.95

H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.)	
Butler, Pa. A10 (C.R.)	T-100
Vandergrift, Pa. U5	13.50

BLACK PLATE (Base Box)	
Alliquippa, Pa. J5	\$6.25
Fairfield, Ala. T2	8.60
Gary, Ind. U5	6.50
Granite City, Ill. G4	6.70
Ind. Harbor, Ind. I-2, Y1	6.50
Irvin, Pa. U5	6.50
Niles, O. R2	8.25
Pittsburgh, Calif. C11	7.25
SparrowsPoint, Md. B2	6.60
Warren, O. R2	6.50
Weirton, W.Va. W6	6.50
Yorkville, O. W10	6.50

HOLLOWARE ENAMELING Black Plate (29 gauge)	
Follansbee, W.Va. F4	6.10
Gary, Ind. U5	6.10
Granite City, Ill. G4	6.30
Ind. Harbor, Ind. Y1	6.10
Irvin, Pa. U5	6.10
Yorkville, O. W10	6.35

SHEETS, Culvert	
Cu	Alloy
Ashland, Ky. A10	5.875
Canton, O. R2	5.925
Fairfield, Ala. T2	5.875
Gary, Ind. U5	5.875
Ind. Harbor I-2	5.875
Irvin, Pa. U5	5.875
Kokomo, Ind. C16	6.525
Martins Ferry, O. W10	5.875
Pittsburgh, Cal. C11	6.825
SparrowsPt. B2	5.875
Terrance, Cal. C11	6.825

SHEETS, Culvert, No. 16 Pure Iron	
Ashland, Ky. A10	6.125
Fairfield, Ala. T2	6.125
Martins Ferry, O. W10	6.125

SHEETS, Hot-Rolled Ingot Iron 18 Gauge and Heavier	
Ashland, Ky. (8) A10	4.025
Cleveland R2	4.375
Ind. Harbor, Ind. I-2	4.025
Warren, O. R2	4.375

SHEETS, Cold-Rolled Ingot Iron	
Butler, Pa. A10	5.075
Cleveland R2	5.175
Middletown, O. A10	5.075
Warren, O. R2	5.175

SHEETS, Galvanized Ingot Iron No. 10 flat	
Ashland, Ky. (8) A10	5.325
Canton, O. R2	5.325

SHEETS, ZINGRIP Ingot Iron	
Butler, Pa. A10	5.575
Middletown, O. A10	5.575

SHEETS, ALUMINIZED	
Butler, Pa. A10	8.425

TIN PLATE, American 1.25 1.50	
Coke (Base Box)	lb
Alliquippa, Pa. J5	\$8.70
Fairfield, Ala. T2	8.80
Gary, Ind. U5	8.70
Ind. Har. I-2, Y1	8.70
Irvin, Pa. U5	8.70
Pitts. Cal. C11	9.45
Sp. Pt., Md. B2	8.30
Warren, O. R2	8.70
Weirton, W.Va. W6	8.70
Yorkville, O. W10	8.70

0.25 lb	
7.40	7.65
7.50	7.75
7.60	7.85
7.60	7.85
7.40	7.65
7.40	7.65
7.40	7.65
8.15	8.40
7.50	7.75
7.40	7.65
7.40	7.65

0.50 lb	
7.65	7.85
7.75	7.95
7.85	8.05
7.85	8.05
7.40	7.65
7.40	7.65
7.40	7.65
8.15	8.40
7.50	7.75
7.40	7.65
7.40	7.65

0.75 lb	
8.05	8.25
8.15	8.35
8.05	8.25
8.05	8.25
8.05	8.25
8.05	8.25
8.05	8.25
8.80	9.00
8.15	8.35
8.05	8.25
8.05	8.25

MANUFACTURING TERNES (Special Coated)	
Fairfield, Ala. T2	\$7.85
Gary, Ind. U5	7.75
Irvin, Pa. U5	7.75
Yorkville, O. W10	7.75

SHEETS, LT. Coated Ternes, 6 lb	
Yorkville, O. W10	\$8.65

SHEETS, Mfg. Ternes, 8 lb (Commercial Quality)	
Gary, Ind. U5	\$9.75
Yorkville, O. W10	9.75

SHEETS, Long Tern Steel (Commercial Quality)	
Beechbottom, W.Va. W10	5.475
Gary, Ind. U5	5.475
Mansfield, O. E6	5.65
Middletown, O. A10	5.475
Niles, O. N12	6.275
Weirton, W.Va. W6	5.475

SHEETS, Long Tern, Ingot Iron	
Middletown, O. A10	5.875

ROOFING SHORT TERNES (8 lb Coated)	
Gary, Ind. U5	9.75

STRIP, Hot-Rolled High-Strength Low-Alloy	
Bessemer, Ala. T2	5.65
Conshohocken, Pa. A3	5.90
Ecorse, Mich. G5	6.30
Fairfield, Ala. T2	5.65
Fontana, Calif. K1	6.65
Gary, Ind. U5	5.65
Ind. Harb., Ind. I-2	5.65
Ind. Harbor, Ind. Y1	6.15
Lackawanna, N.Y. B2	5.70
Los Angeles (25) B3	6.40
Seattle (25) B3	6.65
Sharon, Pa. S3	5.65
So. San Francisco (25) B3	6.40
SparrowsPoint, Md. B2	5.70
Warren, O. R2	6.15
Weirton, W.Va. W6	6.10
Youngstown Y1	6.15
Youngstown U5	5.65

STRIP, Cold-Rolled High-Strength Low-Alloy	
Cleveland J5	7.45
Cleveland A7	7.30
Dover, O. G6	8.00
Ecorse, Mich. G5	8.15
Lackawanna, N.Y. B2	7.90
Sharon, Pa. S3	7.30
SparrowsPoint, Md. B2	7.90
Warren, O. R2	7.30
Weirton, W.Va. W6	7.95
Youngstown Y1	7.95

STRIP, Hot-Rolled Carbon	
Ala. City, Ala. (27) R2	3.725
Atlanta, Ill. L1	4.20
Ashland, Ky. (8) A10	3.725
Atlanta A11	4.275
Bessemer, Ala. T2	3.725
Bridgeport, Conn. (10) S15	4.225
Buffalo (27) R2	3.725
Butler, Pa. A10	3.725
Carnegie, Pa. S18	4.225
Conshohocken, Pa. A3	4.125
Detroit M1	4.40
Ecorse, Mich. G5	4.025
Fairfield, Ala. T2	3.725
Fontana, Calif. K1	5.175
Gary, Ind. U5	3.725
Houston, Tex. S5	4.125
Ind. Harbor, Ind. I-2, Y1	3.725
Johnstown, Pa. (25) B2	3.725
Kansas City, Mo. (9) S5	4.325
Lackawanna, N.Y. (32) B2	3.725
Los Angeles (25) B3	4.475
Milton, Pa. B6	4.35
Minneapolis, Colo. C10	4.775
New Britain (10) S15	4.225

N. Tonawanda, N.Y. B11	3.725
Pittsburgh, Calif. C11	4.475
Riverdale, Ill. A1	3.725
San Francisco S7	5.00
Seattle (25) B3	4.725
Steel Unit 14	4.75
Sharon, Pa. S3	4.225
So. Chicago, Ill. W14	3.725
So. San Francisco (25) B3	4.475
SparrowsPoint, Md. B2	3.725
Sterling, Ill. N15	4.725
Torrance, Calif. C11	4.475
Warren, O. R2	3.725
Weirton, W.Va. W6	3.825
West Leechburg, Pa. A4	3.975
Youngstown U5, Y1	3.725

STRIP, Hot-Rolled Alloy	
Bridgeport, Conn. (10) S15	6.05
Carnegie, Pa. S18	6.45
Fontana, Calif. K1	7.30
Gary, Ind. U5	6.10
Houston, Tex. S5	6.50
Kansas City, Mo. S5	6.70
Midland, Pa. C18	5.85
New Britain, Conn. (10) S15	6.05
Sharon, Pa. S3	6.45
Youngstown U5	6.10

STRIP, Cold-Rolled Carbon	
Anderson, Ind. (40) G6	5.50
Bridgeport, Conn. (10) S15	5.80
Butler, Pa. A10	5.10
Cleveland A7, J5	5.10
Dearborn, Mich. D3	6.05
Detroit D2	5.60
Dover, O. (40) G6	5.50
Ecorse, Mich. G5	5.30
Follansbee, W.Va. F4	5.10
Fontana, Calif. K1	6.75
Franklin Park, Ill. (40) T6	5.35
Ind. Harbor, Ind. I-2	5.35
Lackawanna, N.Y. B2	5.10
Los Angeles C1	6.85
Pawtucket, R.I. (11) T6	5.10
Riverdale, Ill. A1	5.10
Sharon, Pa. S3	5.10
Youngstown U5	5.80

STRIP, Cold-Finished, Spring Steel (Annealed)	
Berea, O. C7	0.26-0.41-0.61-0.81-1.06
Bridgeport, Conn. (10) S15	0.40C 0.60C 0.80C 1.05C 1.30C
Bristol, Conn. W1	6.80 7.40 9.30 11.60
Carnegie, Pa. S18	5.80 7.65 8.25 10.20 12.50
Cleveland A7	5.10 7.30 8.25 10.20 12.50
Dearborn, Mich. D3	6.05 7.90 8.50
Detroit D2	6.45 7.50 8.10
Dover, O. G6	5.70 7.65 8.25 10.20 12.50
Franklin Park, Ill. T6	5.45 7.45 8.40 10.30 12.60
Harrison, N.J. C18	5.85 7.55 8.55 10.50 12.80
Mattapan, Mass. T6	5.95 7.60 8.55 10.50 12.80
New Britain, Conn. (10) S15	5.80 7.65 8.25 10.20 12.50
New Castle, Pa. B4	5.80 7.65 8.25 10.20 12.50
New Castle, Pa. B5	5.80 7.65 8.25 10.20 12.50
New Haven, Conn. D2	6.70 7.60 8.20
New York W3	7.95 8.55 10.50 12.50
Pawtucket, R.I. N8:	
Cleve. or Pitts. Base	7.65 8.25 10.20 12.50
Worcester, Mass., Base	6.30 7.95 8.55 10.50 12.80
Sharon, Pa. S3	5.80 7.65 8.25 10.20 12.50
Trenton, N.J. R5	7.95 8.55 10.50 12.80
Wallingford, Conn. W2	6.30 7.60 8.20 10.10 12.40
Warren, O. T5	6.20 7.65 8.25 10.20 12.50
Weirton, W.Va. W6	5.60 7.65 8.25 10.20 12.50
Worcester, Mass. A7	5.40 7.60 8.55 10.50 12.80
Worcester, Mass. T6	5.95 7.60 8.55 10.50 12.80
Youngstown C8	7.65 8.25 10.20 12.50

Merchant Quality		So. San Francisco C10		Los Angeles B3		Joliet, Ill. A7		So. Chicago, Ill. R2	
8 gage	Galv.	Sparrows Pt. Md. B2	5.325	Minneapolis, Colo. C10	5.525	Kansas City, Mo. S5	1.142	Sparrows Pt. Md. B2	1.127
ma City R2	6.075	Sterling, Ill. (1) N15	5.225	Monessen, Pa. P16	4.2	Kokomo, Ind. C16	1.147	Sterling, Ill. (1) N15	1.127
ppa J5	6.075	Struthers, O. Y1	5.225	Monessen, Pa. P16	4.2	Monessen, Pa. P7	1.147	Torrance, Calif. C11	1.147
ta A11	6.325	Torrance, Calif. C11	1.147	New Haven, Conn. A7	6.575	Pittsburg, Calif. C11	1.162	Worcester, Mass. A7	1.133
nville (19) K4	6.075	Waukegan, Ill. A7	5.225	Palmer, Mass. W12	6.575	Pittsburg, Calif. C11	1.162	STAPLES, Polished, Stock	
to W12	5.225	Worcester, Mass. A7	5.225	Pittsburg, Calif. C11	7.225	Rankin, Pa. A7	1.142	To dealers & mfrs. (7) Col.	
land A7	6.075	WIRE, Cold-Rolled Flat		Portsmouth, O. P12	6.275	So. Chicago, Ill. R2	1.144	Alabama City, Ala. R2	1.126
fordville M8	6.175	Anderson, Ind. G6	6.20	Roebeling, N.J. R5	6.575	So. San Fran., Calif. C10	1.167	Alquippa, Pa. J5	1.126
ra, Pa. A7	6.075	Ruston, W12 (43)	6.35	So. Chicago, Ill. R2	6.275	Sparrows Point, Md. B2	1.146	Atlanta A11	1.126
h Minn. A7	6.075	Cleveland A7 (43)	6.35	So. San Francisco C10	7.225	Sterling, Ill. (1) N15	1.146	Bartonsville, Ill. (19) K4	1.126
eld T2	6.075	Crawf'sville, Ind. M8	4.3	Struthers, O. Y1	6.275	*Based on 14c zinc; 117.5c zinc.		Chicafordville, Ind. M8	1.128
on, Tex. S5	6.475	Dover, O. G6	6.20	Torrance, Calif. C11	7.225	BALE TIES, Single Loop		Donora, Pa. A7	1.126
town B2	6.075	Fosteria, O. S1 (43)	6.00	Trenton, N.J. A7	6.575	Alabama City, Ala. R2	1.132	Duluth, Minn. A7	1.126
Ill. A7	6.075	Kokomo, Ind. C16	4.3	Waukegan, Ill. A7	6.275	Atlanta A11	1.135	Fairfield, Ala. T2	1.126
scy Mo. S5	6.075	Franklin Park, Ill. T6	4.3	Worcester, Mass. A7	6.575	Bartonsville, Ill. (19) K4	1.132	Johnstown, Pa. B2	1.126
no C16	6.175	Massillon, O. R5	4.3	WIRE, Fine & Weaving (8' Coils)		Crawfordville, Ind. M8	1.134	Joliet, Ill. A7	1.126
geles B3	7.025	Monessen, Pa. P16	4.3	Alton, Ill. L1 (43)	9.20	Donora, Pa. A7	1.134	Kokomo, Ind. C16	1.126
qua C10	6.325	Monessen, Pa. P7 (43)	6.10	Bartonsville, Ill. K4	9.42	Duluth, Minn. A7	1.132	Minneapolis, Colo. C10	4.5
sen P7	6.075	Pawtkt, R.I. (2) N8	4.3	Chicago W13	9.32	Fairfield, Ala. T2	1.132	Monessen, Pa. P7	1.127
r W12	5.525	Trenton, N.J. R5	4.3	Cleveland A7 (43)	8.90	Joliet, Ill. A7	1.132	Pittsburg, Calif. C11	1.145
Calif. C11	7.025	Worcester, Mass. A7	4.3	Crawf'sville, Ind. M8	4.3	Kansas City, Mo. S5	1.144	Portsmouth, O. P12	1.132
(13) P12	6.475	Worcester, Mass. T6	4.3	Fosteria, O. S1 (43)	8.90	Kokomo, Ind. C16	1.134	Rankin, Pa. A7	1.126
n A7	6.075	Worcester, Mass. W12	4.3	Johnstown, Pa. B2	4.3	Kokomo, Ind. C16	1.134	So. Chicago, Ill. R2	1.126
icago R2	6.075	WIRE, Galv'd ACSR for Cores		Kokomo, Ind. C16	4.3	Minneapolis, Colo. C10	1.137	Sparrows Pt. Md. B2	1.128
tan C10	7.025	Waukegan, Ill. K4	8.90	Monessen, Pa. P16	4.3	Pittsburg, Calif. C11	1.136	Sterling, Ill. (1) N15	1.126
ows Pt. B2	6.175	Muncie, Ind. I-7 (43)	8.85	Palmer, Mass. W12	4.3	So. Chicago, Ill. R2	1.132	Torrance, Calif. C11	1.146
st (1) N15	6.075	Roebeling, N.J. R5	4.3	Palmer, Mass. W12	4.3	So. San Fran., Calif. C10	1.156	Worcester, Mass. A7	1.132
ce, Cal. C11	6.075	Sparrows Pt. B2	4.3	Waukegan, Ill. A7	4.3	Sterling, Ill. (1) N15	1.132	NAILS, Cut (100 lb keg)	
ster A7	6.375	Johnstown, Pa. B2	4.3	Worcrst, Mass. A7	4.3	TRACK BOLTS (20) Treated		To dealers (33)	
d on 14c zinc; 114.50c		ROPE WIRE		WIRE, Tire Bead		Kansas City, Mo. S5	9.85	Conshohocken, Pa. A3	7.80
117.5c zinc.		Alton, Ill. L1 (43)	9.15	Bartonsville, Ill. K4	11.51	Lebanon, Pa. (31) B2	9.85	Wheeling, W. Va. W10	7.80
An'd. Galv.		Bartonsville, Ill. K4	8.95	Monessen, Pa. P16	11.40	Minneapolis, Colo. C10	9.85	TIE PLATES	
(16 gage) Stone		Buffalo W12 (43)	8.55	Roebeling, N.J. R5	11.55	Pittsburgh O3	9.85	Fairfield, Ala. T2	4.775
14 7/8" base and		Fosteria, O. S1 (43)	8.55	WOVEN FENCE, 9-15 1/2" Ga. Col.		Ind. Harbor, Ind. S13	5.65	Gary, Ind. U5	4.775
extras		Monessen, Pa. P16	8.55	Alta City, Ala. 17-18 ga. R2	1.135	Johnstown, Pa. B2	5.65	Ind. Harbor, Ind. S13	4.775
ppa J5	10.15	Monessen, Pa. P7 (43)	8.80	Alquippa, Pa. 9-14 1/2 ga. J5	1.131	NAILS, Stock		Lackawanna, N.Y. B2	4.775
nville (19) K4	12.00	Muncie, Ind. I-7 (43)	8.75	Atlanta A11	1.140	To dealers & mfrs. (7) Col.		Minneapolis, Colo. C10	95.50
and A7	10.25	Palmer, Mass. W12	4.3	Bartonsville, Ill. (19) K4	1.137	Alabama City, Ala. R2	1.127	Pittsburg, Calif. C11	4.925
rdville M8	10.73	Portsmouth, O. P12	4.3	Crawfordville, Ind. M8	1.139	Alquippa, Pa. J5	1.127	Seattle B3	4.925
ia, O. S1	10.40	Roebeling, N.J. R5	4.3	Donora, Pa. A7	1.133	Atlanta A11	1.130	Steele, Pa. B2	4.775
town B2	10.73	Sparrows Pt. B2	4.3	Duluth, Minn. A7	1.133	Bartonsville, Ill. (19) K4	1.127	Torrance, Calif. C11	4.925
rdville M8	12.325	Struthers, O. Y1	4.3	Fairfield, Ala. T2	1.133	Chicago, Ill. W13	1.125	JOINT BARS	
qua C10	10.10	Worcester, Mass. J4	4.3	Johnstown, Pa. B2	1.138	Cleveland A7 (44)	1.125	Beckwith, Pa. U5	4.925
Calif. C11	10.60	Worcester, Mass. W12	12.15	Johnstown, Pa. B2	2.29	Crawfordville, Ind. M8	1.130	Fairfield, Ala. T2	4.925
ss Pt. B2	10.84	(A) Plow and Mild Plow;		Joliet, Ill. A7	1.133	Donora, Pa. A7	1.127	Ind. Harbor, Ind. I-2	4.925
gs (1) N15	10.73	add 0.25c for improved plow.		Kansas City, Mo. S5	1.145	Duluth, Minn. A7	1.127	Joliet, Ill. U5	4.925
egan A7	10.25	WIRE, MB Spring, High Carbon		Kokomo, Ind. C16	1.140	Fairfield, Ala. T2	1.127	Lackawanna, N.Y. B2	4.925
ster A7	11.85	Alquippa, Pa. J5 (43)	6.25	Minneapolis, Colo. C10	1.146	Galveston, Tex. D7	1.135	Minneapolis, Colo. C10	4.925
d on 14c zinc; 114.50c		Alton, Ill. L1 (43)	6.55	Monessen, Pa. P7	1.138	Houston, Tex. S5 (44)	1.126	Steele, Pa. B2	4.925
Includes 4.7% increase.		Bartonsville, Ill. K4	6.64	Pittsburg, Calif. C11	1.156	Johnstown, Pa. B2	1.127	STANDARD TRACK SPIES	
Manufacturers Bright,		Cleveland A7 (43)	6.25	Rankin, Pa. A7	1.133	Joliet, Ill. A7	1.127	Ind. Harbor, Ind. I-2	6.65
Carbon		Donora, Pa. A7 (43)	6.25	Sterling, Ill. (1) N15	1.137	Kansas City, Mo. S5 (44)	1.130	Kansas City, Mo. S5	6.80
Alta City, Ala. R2	5.225	Duluth, Minn. A7 (43)	6.25	*Based on 14c zinc; 117.5c zinc.		Kokomo, Ind. C16	1.129	Lebanon, Pa. B2	6.65
ppa, Pa. J5 (42)	4.85	Fosteria, O. S1 (43)	6.25	FENCE POSTS		Minneapolis, Colo. C10	1.142	Minneapolis, Colo. C10	6.65
ta A11	5.475	Johnstown, Pa. B2 (43)	6.25	Chicago HHS, Ill. C2	1.140	Monessen, Pa. P7	1.127	Pittsburg J5	6.65
Ill. L1	5.45	Millbury (12) N6	4.3	Duluth, Minn. A7	1.133	Pittsburg, Calif. C11	1.127	Seattle B3	7.15
nville, Ill. K4	5.325	Minneapolis, Colo. C10	4.3	Franklin, Pa. F5	1.145	Portsmouth, O. P12	1.146	So. Chicago, Ill. R2	6.65
to W12	5.225	Monessen, Pa. P16	6.75	Huntington, W. Va. W7	1.148	Rankin, Pa. A7	1.127	Struthers, O. Y1	6.65
to W13	5.475	Monessen, Ind. I-7 (43)	8.45	Johnstown, Pa. B2	1.148	* Per net ton.		Youngstown R2	6.55
and A7, C20	5.225	Palmer, Mass. W12	4.3	Johnstown, Pa. B2	1.148	RAILS		Std. All 60 lb	
rdville, Ind. M8	5.325	Pittsburg, Calif. C11	4.3	Joliet, Ill. A7	1.133	Bessemer, Pa. U5	3.775	No. 1	3.775
ra, Pa. A7	5.225	Roebeling, N.J. R5	4.3	Minneapolis, Colo. C10	1.138	Ensley, Ala. T2	3.775	No. 2	3.775
h Minn. A7	5.225	Portsmouth, O. P12	4.3	Moline, Ill. R2	1.136	Fairfield, Ala. T2	3.775	No. 3	3.775
eld, Ala. T2	5.225	So. Chicago, Ill. R2	4.3	So. Chicago, Ill. R2	1.140	Gary, Ind. U5	3.775	No. 4	3.775
id, Ala. (24) S1	5.725	So. San Fran., Calif. C10	7.20	Moine, Ill. R2	1.136	Huntington, W. Va. W7	3.775	No. 5	3.775
ra, O. S5	5.625	Sparrows Pt. Md. B2	4.3	So. Chicago, Ill. R2	1.140	Indiana Harbor, Ind. I-2	3.775	No. 6	3.775
own, Pa. B2	5.225	Struthers, O. Y1	4.3	So. Chicago, Ill. R2	1.140	Johnstown, Pa. B2	3.775	No. 7	3.775
Ill. A7	5.225	Trenton, N.J. A7 (43)	6.55	So. Chicago, Ill. R2	1.140	Lackawanna, N.Y. B2	3.775	No. 8	3.775
scy Mo. S5	5.825	Waukegan, Ill. A7 (43)	6.25	Williamsport, Pa. S19	1.158	Minneapolis, Colo. C10	75.50	No. 9	4.75
to, Ind. C16	5.325	Worcester A7	6.25	WIRE, Barbed		Steele, Pa. B2	3.775	No. 10	4.75
geles B3	6.175	Worcester, Mass. W12	4.3	Alabama City, Ala. R2	1.144	Williamsport, Pa. S19		No. 11	5.00
qua, Colo. C10	5.475	Worcester, Mass. J4	4.3	Alquippa, Pa. J5	1.148	* Per net ton.		TOOL STEEL	
sen, Pa. P7	5.475	WIRE, Upholstery Spring		Atlanta A11	1.149	(Prices subject to 4.7% increase)		Std. All 60 lb	
h Minn. A7	5.83	Alquippa, Pa. J5	6.275	Bartonsville, Ill. (19) K4	1.146	Grade		No. 1	3.775
nawanda, B1	5.225	Alton, Ill. L1	6.50	Crawfordville, Ind. M8	1.148	Regular Carbon	0.230	No. 2	3.775
r, Mass. W12	5.525	Buffalo W12	6.275	Donora, Pa. A7	1.142	Extra Carbon	0.270	No. 3	3.775
rg, Calif. C11	6.175	Cleveland A7	6.275	Duluth, Minn. A7	1.142	Special Carbon	0.325	No. 4	3.775
nouth, O. P12	5.625	Donora, Pa. A7	6.275	Fairfield, Ala. T2	1.142	Oil Hardening	0.350	No. 5	3.775
ra, A7	5.225	Duluth, Minn. A7	6.275	Houston, Tex. S5	1.150	5% C Hot Work	0.350	No. 6	3.775
icago, Ill. R2	5.225	Johnstown, Pa. B2	6.275	Johnstown, Pa. B2	1.147	Harden-Cut	0.635	No. 7	3.775

by to Producers

Louth Steel Corp.	P13 Precision Drawn Steel	T2 Tenn. Coal & Iron Div.
Lahoning Valley Steel	P14 Pits. Screw & Bolt Co.	T3 Tenn. Prod. & Chem.
edart Co.	P15 Pittsburgh Metallurgical	T4 Texas Steel Co.
Tube & Mfg. Co.	P16 Page Steel & Wire Div.	T5 Thomas Strip Division,
Id-Steel Steel & Wire	Amer. Chain & Cable	Pittsburgh Steel Co.
oltrup Steel Products	P17 Plymouth Steel Co.	T6 Thompson Wire Co.
onarch Steel Co.	R1 Reeves Steel & Mfg. Co.	T7 Timken Roller Bearing
ational Supply Co.	R2 Republic Steel Corp.	T9 Tonawanda Iron Div.
ational Tube Div.	R3 Republic Steel Corp.	Am. Rad. & Stan. San.
Elson Steel & Wire Co.	R4 Republic Steel Corp.	U4 Universal Cyclops Steel
ew-Eng.-High-Carb. Wire	R5 Roebeling's Sons, John A.	U5 United States Steel Corp.
ewman-Crosby Steel	R6 Rome Strip Steel Co.	V2 Vanadium-Alloys Steel
ies Rolling Mill Div.	R7 Rotary Electric Steel Co.	V3 Vulcan Crucible Steel Co.
thwest Steel Prod. Mills	R8 Reliance Div., Eaton Mfg.	W1 Wallace Barnes Co.
orthwestern S. & W. Co.	S1 Seneca Wire & Mfg. Co.	W2 Wallingford Steel Co.
ew Delphos Mills	S3 Sharon Steel Corp.	W3 Washburn Wire Co.
ew Iron & Steel Corp.	S4 Sharon Tube Co.	W6 Washington Steel Corp.
egon Steel Mills	S5 Sheffield Steel Corp.	W7 Weirton Steel Co.
teille States Steel Corp.	S6 Shenango Furnace Co.	W8 W. Va. Steel & Mfg. Co.
teille Tube Co.	S7 Simmons Co.	W9 West. Auto. Mach. Screw
onix Iron & Steel Co.	S8 Simonds Saw & Steel Co.	W10 Wheeling Steel Corp.
grim Drawn Steel	S9 Sloss-Sheffield S. & I. Div.	W12 Wickwire Spenser Steel
Pittsburgh Coke & Chem.	S10 Standard Forgings Corp.	Div., Colo. Fuel & Iron
Pittsburgh Steel Co.	S11 Standard Tube Co.	W13 Wisconsin Steel Div.
Pittsburgh Tube Co.	S12 Stanley Works	International Harvester
Plak Steel Co.	S13 Struthers Iron & Steel	W15 Woodward Iron Co.
etroit Division,	S14 Superior Steel Corp.	W15 Wyckoff Steel Co.
etroit Steel Corp.	S15 Sweet's Steel Co.	Y1 Youngstown Steel & Tube
	S20 Southern States Steel	
	S24 Seidelhuber Steel	

Substitutes Plate Burning by SHEARING ...and Saves Time

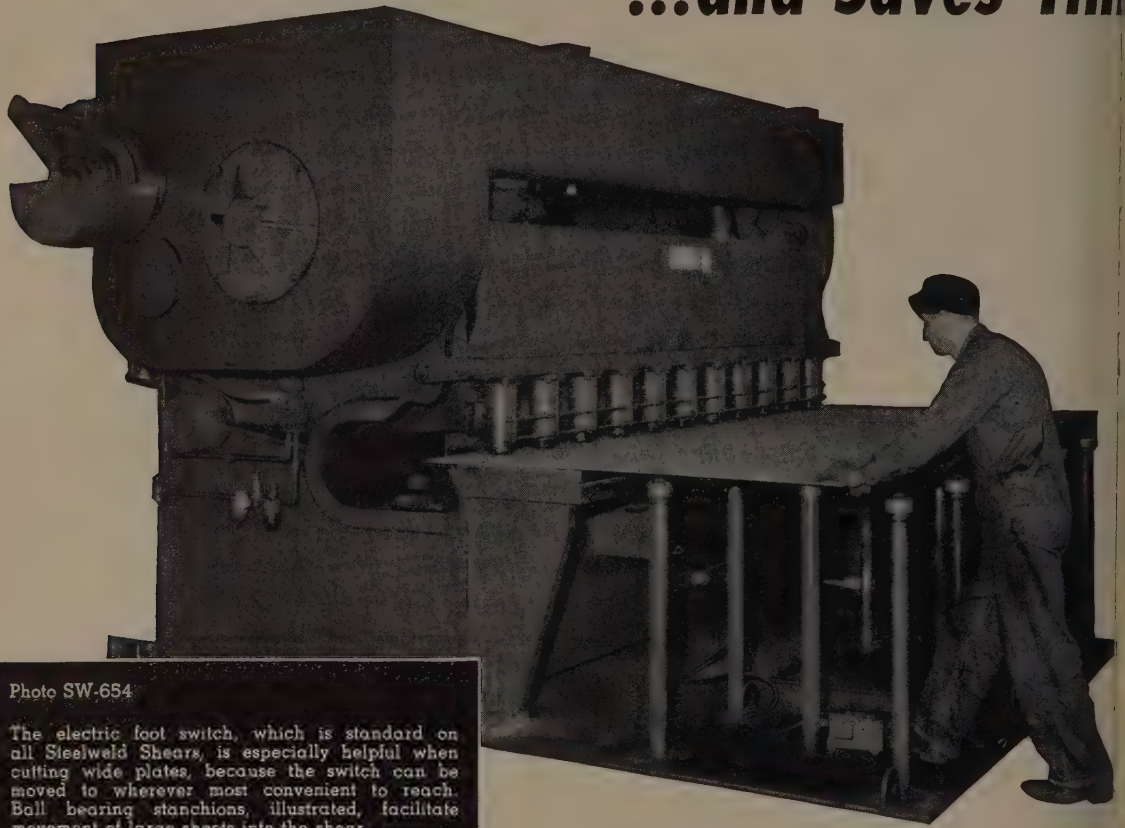


Photo SW-654

The electric foot switch, which is standard on all Steelweld Shears, is especially helpful when cutting wide plates, because the switch can be moved to wherever most convenient to reach. Ball bearing stanchions, illustrated, facilitate movement of large sheets into the shear.

A STEELWELD Pivoted-Blade Shear has cut production time considerably at the Youngstown, Ohio, plant of United Engineering and Foundry Co. Formerly, they cut plate by burning, but now the Steelweld shears it so fast that the operator can spend much of his time at other work.

When plates are cut by burning, a good deal of work is required to prepare the edges for assembly by welding. When plates are sheared, all such preparation is made unnecessary.

United Engineering's shear has a mild steel

shearing capacity of 10' x $\frac{1}{2}$ " and is equipped with air-electric control. An air cylinder provides fast, positive operation for clutch and brake. The machine has a cutting speed of 45 strokes per minute.

Steelweld Shears have so many outstanding features to insure accuracy, speed production and make operation easier, that we urge you to get the facts on these modern tools. Ask for a nearby representative to call, without obligation, or correspond or write for catalog below.

GET THIS BOOK!

CATALOG No. 2011 gives construction and engineering details. Profusely illustrated.

THE CLEVELAND CRANE & ENGINEERING CO.

7834 East 282nd Street, Wickliffe, Ohio



STEELWELD PIVOTED BLADE SHEARS

WELD STANDARD PIPE, T & C													Carload discounts from list, %
Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	
Per Ft.	8.5c	11.5c	17c	23c	27.5c	37c	45.5c	55.5c	65.5c	75.5c	85.5c	95.5c	
Is Per Ft.	0.85	1.13	1.68	2.28	2.73	3.68	4.58	5.48	6.38	7.28	8.18	9.08	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
ppa, Pa. J5 (†)	32.5	15.25	35.5	18.25	38	20.75	38.5	20.5	39	21	39.5	21.5	
IL, LI (†)	29.5	10.5	32.5	14.5	35	18	35.5	18.5	36	19.5	36.5	20	
od, W. Va. W10.	32.5	13.25	35.5	17.25	38	20.75	38.5	20.5	39	21.5	39.5	22	
Pa. N2 (†)	32.5	13.25	35.5	17.25	38	20.75	38.5	20.5	39	22.25	39.5	22	
n, Calif. K1 (†)	19.5	0.25	22.5	4.25	25	7.75	25.5	7.5	26	8.5	26.5	9	
harbor, Ind. Y1 (†)	31.5	14.25	34.5	18.25	37	21.75	37.5	21	38	22	38.5	22.25	
n, O. N3 (*)	32.5	22.25	35.5	26.25	38	29.75	38.5	27.25	39	28.25	39.5	28.75	
n, Pa. M6	32.5	14.25	35.5	18.25	38	21.25	38.5	20.50	39	21.00	39.5	21.50	
wa Pt., Md. B2	30.5	11.25	33.5	15.25	36	18.75	36.5	18.5	37	19.5	37.5	20	
stown R2 (†)	32.5	15.25	35.5	19.25	38	22.75	38.5	22	39	23	39.5	23.5	
stown Y1 (†)	32.5	15.25	35.5	19.25	38	22.75	38.5	22.00	39	23.00	39.5	23.50	
land, Pa. W9	32.5	13.25	35.5	16.25	38	18.75	38.5	19	39	19.5	39.5	20	

SELESS STANDARD PIPE, T & C													Carload discounts from list, %
Inches	2	2 1/2	3	3 1/2	4	5	6	7	8	9	10	11	
Per Ft.	37c	58.5c	76.5c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	3.68	5.82	7.62	9.20	10.89	14.81	19.18	23.55	27.92	32.29	36.66	41.03	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
ppa, Pa. J5 (†)	24	6	27	8.25	29	10.25	29	10.25	33.75	11	33.75	15	
de, Pa. N2	24	6	27	8.25	29	10.25	29	10.25	33.75	15	33.75	15	
n, O. N3 (*)	24	12.75	27	12.75	29	14.25	29	14.75	33.75	19.5	33.75	19.5	
stown Y1 (†)	24	7.50	27	9.25	29	11.25	29	11.25	33.75	16	33.75	16	

TRIC WELD STANDARD PIPE, T & C													Carload discounts from list, %
Inches	2	2 1/2	3	3 1/2	4	5	6	7	8	9	10	11	
Per Ft.	37c	58.5c	76.5c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	3.68	5.82	7.62	9.20	10.89	14.81	19.18	23.55	27.92	32.29	36.66	41.03	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
ppa, Pa. J5 (†)	24	6	27	8.25	29	10.25	29	10.25	33.75	11	33.75	15	
de, Pa. N2	24	6	27	8.25	29	10.25	29	10.25	33.75	15	33.75	15	
n, O. N3 (*)	24	12.75	27	12.75	29	14.25	29	14.75	33.75	19.5	33.75	19.5	
stown Y1 (†)	24	7.50	27	9.25	29	11.25	29	11.25	33.75	16	33.75	16	

WELD STANDARD PIPE, T & C													Carload discounts from list, %
Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	
Per Ft.	5.5c	6c	6c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	0.24	0.42	0.57	0.92	1.09	1.48	1.92	2.36	2.80	3.24	3.68	4.12	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
od, W. Va. W10	29.5	+0.25	23.25	+3.5	17.75	+7.75	33	14.25	33	14.25	33	14.25	
Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. M6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. S4 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Sp, P., Md. B2	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
stown R2 (†)	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
land, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	

BOILER TUBES													Carload discounts from list, %
Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	
Per Ft.	5.5c	6c	6c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	0.24	0.42	0.57	0.92	1.09	1.48	1.92	2.36	2.80	3.24	3.68	4.12	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
od, W. Va. W10	29.5	+0.25	23.25	+3.5	17.75	+7.75	33	14.25	33	14.25	33	14.25	
Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. M6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. S4 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Sp, P., Md. B2	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
stown R2 (†)	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
land, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	

STAINLESS STEEL													Carload discounts from list, %
Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	
Per Ft.	5.5c	6c	6c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	0.24	0.42	0.57	0.92	1.09	1.48	1.92	2.36	2.80	3.24	3.68	4.12	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
od, W. Va. W10	29.5	+0.25	23.25	+3.5	17.75	+7.75	33	14.25	33	14.25	33	14.25	
Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. M6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. S4 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Sp, P., Md. B2	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
stown R2 (†)	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
land, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	

METAL POWDERS													Carload discounts from list, %
Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	
Per Ft.	5.5c	6c	6c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	0.24	0.42	0.57	0.92	1.09	1.48	1.92	2.36	2.80	3.24	3.68	4.12	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
od, W. Va. W10	29.5	+0.25	23.25	+3.5	17.75	+7.75	33	14.25	33	14.25	33	14.25	
Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. M6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. S4 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Sp, P., Md. B2	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
stown R2 (†)	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
land, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	

METAL POWDERS													Carload discounts from list, %
Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	
Per Ft.	5.5c	6c	6c	92c	\$1.09	\$1.48	\$1.92	\$2.36	\$2.80	\$3.24	\$3.68	\$4.12	
Is Per Ft.	0.24	0.42	0.57	0.92	1.09	1.48	1.92	2.36	2.80	3.24	3.68	4.12	
	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	Bilk	Galv	
od, W. Va. W10	29.5	+0.25	23.25	+3.5	17.75	+7.75	33	14.25	33	14.25	33	14.25	
Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. M6 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Pa. S4 (†)	30.5	1.25	25	+1.75	20	+5.5	33	14.25	33	14.25	33	14.25	
Sp, P., Md. B2	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
stown R2 (†)	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	
land, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50	33	15.25	33	15.25	33	15.25	

Call Solar...

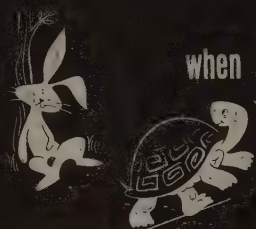


when you need to Watch Your "Temper"

That's the time to let Solar furnish you with any commercial standard or special temper, from stock or by processing. The right temper makes for production increases.

when you want to Get the "Edge"

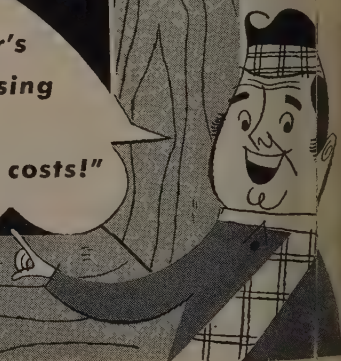
Just let a Solar warehouse do your Rounded, Beveled, Square or Special edging. Eliminate this step in your own manufacturing.



when it's the "Finish" that Counts

Solar warehouses do provide 10 standard finishes on flat rolled and bar products. The correct finish helps improve production.

**"Solar's
processing
cuts your
manufacturing costs!"**



"for service dependable as the sun"
SOLAR STEEL CORPORATION

SPEC
©1952

General Offices: UNION COMMERCE BUILDING, CLEVELAND, OHIO

See your local classified telephone directory for our nearest office address

SALES OFFICES: Chicago • Cincinnati • Cleveland • Detroit • Grand Rapids • Kalamazoo • Milwaukee • Nashville
New Haven • Philadelphia • River Rouge, Mich. • Rochester, N.Y. • Toledo • Union, N.J. • Washington, D.C. • Worcester, Mass.

WAREHOUSE STEEL PRODUCTS

representative prices, cents per pound, subject to extras, f.o.b. warehouse. City delivery charges are 20 cents per 100 lb except: New York, 30 cents; Philadelphia, 25 cents; Birmingham, Cincinnati, San Francisco, St. Paul, 15 cents.)

	SHEETS		STRIP		BARS		Standard	PLATES	
	H.R. 18 Ga., Heavier*	C.R.	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.*	Structural Shapes	Carbon	Floor
ore	5.81	7.17	6.42	...	6.41	7.42	11.17	6.47	7.70
s	6.51	7.36	6.55	...	6.42	7.49	11.18	6.56	7.98
rt	5.80	6.65	6.21	...	5.90	6.95	11.07	6.08	7.67
ham	5.80	6.65	5.80	...	5.80	6.65	...	5.95	6.10
le	5.80	6.65	5.83	...	5.83	6.80	10.65	5.95	7.18
atl	6.13	6.72	6.14	...	6.13	7.16	11.07	6.42	7.60
nd	5.80	6.65	6.00	...	5.89	6.90	10.79	6.28	7.51
tt	6.07	6.87	6.13	7.70	6.12	7.10	10.92	6.42	7.52
u	6.74	...	6.89	...	6.98	...	...	6.82	8.16
ity,N.J.	6.35	7.27	6.75	...	6.59	7.78	9.54	6.39	8.01
gies	6.60	8.45	6.75	11.20	6.60	8.60	12.05	6.60	8.90
tee	5.97	6.82	6.00	...	6.00	7.07	10.82	6.12	7.35
ll	6.16	7.00	6.19	...	6.18	7.16	...	6.30	...
w, N.J.	6.62	7.41	6.63	...	6.79	7.71	...	6.70	7.18
rk	6.26	7.27	6.42	...	6.59	7.53	11.04	6.39	8.01
r, Va.	7.60	...	...	...	6.44	8.70	...	7.25	7.33
h, Va.	6.11	7.13	6.45	8.30	6.42	7.45	10.79	6.17	7.38
h, Va.	5.80	6.65	5.94	...	5.83	6.90	10.65	5.95	7.18
l, Oreg.	7.80	9.05	7.60	...	7.35	9.65	...	7.30	9.25
nd, Va.	6.14	6.95	6.53	...	6.30	7.63	...	6.58	7.80
is	6.10	6.94	6.14	...	6.13	7.20	10.95	6.35	7.58
l	6.47	7.31	6.50	...	6.49	7.57	...	6.61	7.84
ncisco.	6.90	8.20	6.75	...	6.65	8.65	12.05	6.50	8.90
Tacoma.	7.36	8.24	7.45	...	7.13	9.62	11.90 ³	6.87	9.11
(city).	7.80	9.40	7.65	...	7.10	9.70	11.90	7.00	9.15
ston	6.31	7.61	6.89	...	6.90	8.03	...	6.93	8.17

ces do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage excluded); ‡ includes 25-cent special bar quality extra; \$ as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rip, 2000 lb and over; cold-finished bars, 2000 lb and over; 2-500 to 1499 lb; 3-1000 to 1999 lb.

Ores

CHROMIUM ALLOYS

Lake Superior Iron Ore

os, 51% (natural), lower lake ports.	
ge bessemer	\$9.45
e nonbessemer	9.30
bessemer	9.20
nonbessemer	9.05
osphorus	9.05
adjustment for analysis, prices will be	
or decreased as the case may be for	
or decreases after Dec. 1, 1950, in	
e lake vessel rates, upper lake rail	
e dock handling charges and taxes	

High-Carbon Ferrochrome: Contract, c.l., lump, bulk 24.75c per lb of contained Cr; c.l., packed 25.65c, ton lot 26.80c, less ton 28.20c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: (Cr 67-72%) Contract, carload, lump, bulk, max. 0.03% C 37.60c per lb of contained Cr, 0.04% C 35.50c, 0.06% C 34.50c, 0.10% C 34.00c, 0.15% C 33.75c, 0.20% C 33.50c, 0.50% C 33.25c, 1% C 33.00c, 1.50% C 32.85c, 2% C 32.75c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, High Carbon: (Cr 62-66%, C 5-7%) Contract, c.l. 8 M x D, bulk, 26.25c per lb of contained Cr, c.l., packed 27.15c, ton 28.50c, less ton 30.25c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, Low Carbon: (Cr 50-54%, Si 28-32%, C 1.25% max.) Contract, carload, packed, 8 M x D, 18.35c per lb of alloy; ton lot 19.2c; less ton lot, 20.4c, delivered; spot, add 0.25c.

Low-Carbon Ferrochrome Silicon: (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk 25.75c per lb of contained chromium plus 12.4c per pound of contained silicon; 1" x down, bulk 25.90c per pound of contained chromium plus 12.60c per pound of contained silicon. F.o.b. plant; freight allowed to destination.

Ferrochrome Silicon, No. 2: (Cr 36-39%, Si 28-39%, Al 7-9%, C 0.05% max.) 25.75c per lb of contained silicon plus 16.4c per lb of contained silicon plus aluminum 3" x down, delivered.

Chromium Metal: (Min 97% Cr and 1% Fe) contract carload, 1" x D; packed, max 0.50% C grade, \$1.12 per lb of contained chromium ton lot \$1.14, less ton \$1.16. Delivered. Spot, add 5c.

SILICON ALLOYS

25-30% Ferrosilicon: Contract, carload, lump, bulk, 20.0c per lb of contained Si; packed 21.40c; ton lot 22.50c, f.o.b. Niagara Falls, freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 12.40c per lb of contained Si, carload packed 14.0c, ton lot 15.45c, less ton 17.1c. Delivered. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices. 75% Ferrosilicon: Contract, carload, lump, bulk, 14.3c per lb of contained Si, carload

packed 15.6c, ton lot 16.75c, less ton 18.0c. Delivered. Spot, add 0.8c.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 17.0c per lb of contained Si, carload packed 18.2c, ton lot 19.15c, less ton 20.2c. Delivered. Spot, add 0.25c.

Silicon Metal: (Min 97% Si and 1% max Fe) c.l., lump, bulk, regular 18.5c per lb of Si, c.l., packed 19.7c, ton lot 20.6c, less ton 21.6c. Add 0.5c for max. 0.10% calcium grade. Deduct 0.5c for max 2% Fe grade analyzing min 96% Si. Spot, add 0.25c.

Alsilfer: (Approx. 20% Al, 40% Si, 40% Fe) Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.90c per lb of alloy, ton lots packed 11.30c, 200 to 1999 lb 11.65c, smaller lots 12.15c.

VANADIUM ALLOYS

Ferrovanadium: Open-hearth Grade (V 35-55%, Si 8-12% max C 3-3.5% max.) Contract, any quantity, \$3.10 per lb of contained V. Delivered. Spot, add 10c. Crucible-Special Grades (V 35-55%, Si 2-3.5% max, C 0.5-1% max), \$3.20. Primos and High Speed Grades (V 35-55%, Si 1.50% max, C 0.20% max) \$3.30.

Grainal: Vanadium Grainal No. 1, \$1 per lb; No. 6, 68c; No. 79, 50c, freight allowed.

Vanadium Oxide: Contract, less carload lots \$1.28 per lb contained V₂O₅, freight allowed. Spot, add 5c.

BORON ALLOYS

Ferrobore: B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max.) Contract, 100 lb or more, 1" x D, \$1.20 per lb of alloy. Less than 100 lb \$1.30. Delivered, spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over, are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) \$1.20; Grade C (19% min B) \$1.50.

Borasil: (3 to 4% B, 40 to 45% Si), \$5.25 per lb contained B, delivered to destination.

Bortam: (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 1 to 2%) contract, lump, carloads 9.50c per lb, f.o.b. Suspension Bridge, N. Y. freight allowed same as high-carbon ferrotitanium.

TUNGSTEN ALLOYS*

Ferrotungsten: (70-80%). 10,000 lb W or more, \$4.85 per lb of contained W; 2000 lb W to 10,000 lb W, \$4.95; less than 2000 lb W, \$5.07, f.o.b. Niagara Falls, N. Y.

* Government ceiling prices, effective May 7, 1951, f.o.b. Niagara Falls, N. Y., basis.

Chrome Ore
f.o.b. cars New York, Philadelphia, Charleston, S. C., plus ocean differential for delivery to Portland, Tacoma, Wash.

Indian and African	
1	\$39.00-\$42.00
ratio	44.00-45.00
ratio	30.00-32.00

South African Transvaal	
ratio	\$27.00-\$28.00
ratio	34.00-35.00

Brazilian	
1 lump	nom.

Domestic (Rail nearest seller)	
1	\$39.00

Molybdenum	
concentrates per lb, molyb-	
content, mines	\$1.00

NOTE: Current prices on manganese, titanium and "other ferroalloys" appeared on page 127 Jan. 19 issue; calcium, zirconium, briquetted alloys and refractories, page 115, Jan. 26.

CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952.

STEELMAKING SCRAP COMPOSITE

Jan. 29	\$43.00
Jan. 22	43.00
Dec., 1952	43.00
Jan., 1952	43.00
Jan., 1948	40.75

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

24. Heavy Turnings	1.00
25. Bricketted Turnings	Base
26. No. 1 Chemical Borings	3.00
27. No. 2 Chemical Borings	4.00
28. Wrought Iron	+10.00
29. Shafting	+10.00
31. Old Tin & Terne Plated Bundles	-10.00

Unprepared Grades

32. No. 1 Bundles	6.00
33. No. 2 Bundles	9.00
34. Other than material suitable for hydraulic compression	8.00

Restrictions on Use

- (1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for grades 12 and 8, respectively.
- (2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes, and in the case of Grade 27, for bricketting and direct charge into an electric furnace; otherwise ceiling prices shall not exceed price established for Grade 10.
- (3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.
- (4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and acid open-hearth furnaces or foundries; or in basic O-H or blast furnace under NPA allocation or OPS authorization.
- (5) Prices for Grade 29 may be charged only when sold for forging or rerolling purposes.

Differentials from Base

- Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap:
2. No. 2 Heavy Melting Steel
 3. No. 2 Steel Wheel
 4. Hollow Bored Axles and loco. axles with keyways between the wheelseats.
 5. No. 1 Bushing
 6. No. 1 Turnings
 7. No. 2 Turnings, Drill ings & Borings
 8. No. 2 Cast Steel and uncult wheelcenters
 9. Uncult Frogs, Switches
 10. Flues, Tubes & Pipes
 11. Structural, Wrought Iron and/or/Steel, uncult
 12. Destroyed Steel Cars
 13. No. 1 Sheet Scrap
 14. Scrap Rails, Random Lengths
 15. Rerolling Rails
 16. 3 feet and under
 17. 2 feet and under
 18. 18 inches and under
 19. Cast Steel, No. 1
 20. Uncult Tires
 21. Cut Tires
 22. Bolsters & Side Frames:
 23. Uncult
 24. Angles, Splice Bars & The Plates
 25. Solid Steel Axles
 26. Steel Wheels, No. 3, oversize
 27. Steel Wheels, No. 3
 28. Spring Steel
 29. Couplers & Knuckles
 30. Wrought Iron
 31. Fireboxes
 32. Boilers
 33. No. 2 Sheet Scrap
 34. Carsides, Doors, Car Ends, cut apart
 35. Unassorted Iron & Steel
 36. Unprepared scrap, not suitable for hydraulic compression

Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

O-H and Blast Furnace Grades

2. No. 1 Bushing	Base
3. No. 1 Heavy Melting	-1.00
4. No. 2 Heavy Melting	1.00
5. No. 2 Bundles	1.00
6. Machine Shop Turnings	-10.00
7. Mixed Borings and Short Turnings	8.00
8. Shoveling Turnings	6.00
9. No. 2 Bushing	4.00
10. Cast Iron Borings	6.00

Elec. Furnace and Fdry. Grades

11. Billet, Bloom & Forge Crops	+ 7.50
12. Bar Crops & Plate	+ 5.00
13. Cast Steel	+ 5.00
14. Punchings & Plate Scrap	+ 2.50
15. Electric Furnace Bundles	+ 2.00

Cut Structural & Plate:

16. 3 feet and under	+ 3.00
17. 2 feet and under	+ 5.00
18. 1 foot and under	+ 6.00
19. Bricketted Cast Iron Borings	Base

Foundry, Steel:

20. 2 feet and under	Base
21. 1 foot and under	+ 2.00
22. Springs and Crane shafts	+ 1.00
23. Alloy Free Turnings	3.00

- (2) For hydraulically compressing Grade No. 1, \$8 per ton; Grade No. 5, \$8.
- (3) For crushing Grade No. 6, \$3. For preparing into:
 - (4) Grade No. 25, \$8.
 - (5) Grade No. 19, \$8.
 - (6) Grades No. 12, No. 13, No. 14, No. 15, or No. 20, \$10.
 - (7) Grade No. 17 or No. 21, \$11.
 - (8) Grade No. 18, \$12.
- (9) For hydraulically compressing Grade No. 15, \$8.
- (10) For preparing into Grade No. 28, \$10.

Ceiling fees per gross ton which may be charged for transit preparation of any grade of steel scrap of railroad origin shall be:

- (1) For preparing into Grade No. 1 and Grade No. 2, \$8.
- (2) For hydraulically compressing Grade No. 13, \$6. For preparing into:
 - (3) Grade No. 16, \$4.
 - (4) Grade No. 17, \$5.
 - (5) Grade No. 18, \$7.
 - (6) Grade No. 21, \$4.
 - (7) Grade No. 23, \$4.

Ceiling fees per gross ton which may be charged for transit preparation of cast iron are limited to:

- (1) For preparing Grade No. 8 into Grade No. 7, \$9.
- (2) For preparing Grade No. 3 into Grade No. 11, \$7.
- (3) For preparing Grade No. 3 into Grade No. 1, \$4.

CAST IRON SCRAP

Ceiling price per gross ton for following grades shall be f.o.b. shipping point:

1. No. 1 (Cupola)
2. No. 3 (Charging Box)
3. No. 2 (Hyv. Breakable)
4. No. 4 (Burnt Cast)
5. Cast Iron Brake Shoes
6. Stove Plate
7. Clean Auto Cast
8. Unstripped Motor Blocks
9. Wheels, No. 1
10. Malleable
11. Drop broken machinery

OPEN MARKET

(Delivered prices include broker's commission.)

Birmingham (Delivered)	
Shoveling turnings	\$30.00-32.00
Cast iron borings	30.00-32.00
No. 1 cupola cast	44.00-45.00
Stove plate	39.00-42.00
Heavy breakable	36.00-37.00
Drop broken machinery	42.00-43.00
Unstripped motor blocks	35.00-38.00

Boston

(F.o.b. shipping point)	
No. 1 cupola cast	41.00
Heavy breakable	38.00
Stove plate	34.00-35.00
Unstripped motor blocks	30.00

Buffalo

(Delivered)	
No. 1 heavy melting	43.00
No. 2 heavy melting	43.00
No. 1 bundles	44.00
No. 1 bushing	44.00
No. 2 bundles	43.00
Machine shop turnings	34.00
Mixed borings, turnings	38.00
Cast iron borings	38.00
Short shoveling turnings	38.00
No. 1 cupola cast	45.00-46.50
No. 1 machinery cast	49.00-50.00

Chicago

(Delivered)	
No. 2 heavy melting	42.50
No. 2 bundles	42.50
Machine shop turnings	30.50-32.50
Mixed borings, turnings	34.50-36.50
Shoveling turnings	34.50-36.50
Cast iron borings	34.50-36.50
No. 1 cupola cast	42.00-44.00
Charging box cast	40.00-42.00
Heavy breakable	37.00-39.00
Burning box cast	33.00-35.00
Cast iron brake shg.	40.00-42.00
Stove plate	40.00-42.00
Clean auto cast	44.00-46.00
Unstripped motor blocks	35.00-37.00
Malleable	46.00-48.00
Drop broken machinery	46.00-48.00

Cleveland

(Delivered)	
No. 1 heavy melting	43.00
No. 2 heavy melting	43.00

No. 1 bundles	40
No. 2 bundles	40
Machine shop turnings	40
Mixed borings, turnings	40
Shoveling turnings	40
Cast iron borings	40

(F.o.b. shipping point)	
No. 1 cupola	40
Charging box cast	40
Burnt cast	40
Stove plate	40
Clean auto cast	40
Unstripped motor blocks	40
Malleable	40
Drop broken machinery	40

Detroit

(F.o.b. shipping point)	
No. 1 cupola cast	47.00-50
Heavy breakable	43.00-50
Clean auto cast	43.00-50
Unstripped motor blocks	40.00-50
Drop broken machinery	50.00-50
Charging box cast	44.00-50

Los Angeles

(Delivered)	
No. 1 heavy melting	40
No. 2 heavy melting	40
No. 1 bundles	40
No. 2 bundles	40
No. 1 cupola cast	40
Machine shop turnings	40

New York

(Brokers' buying prices)	
No. 2 heavy melting	49
Mixed borings, turnings	49
Machine shop turnings	49
Cupola cast	49
Unstripped motor blocks	40

Philadelphia

No. 1 heavy melting	50
No. 2 heavy melting	50
No. 1 bundles	50
No. 2 bundles	50
No. 1 bushing	50
Mixed borings, turnings	50
Machine shop turnings	50
Short shoveling turnings	50
No. 1 cupola cast	45.00-40
Unstripped motor blocks	40
Heavy breakable	40
Machinery cast	50
Charging box cast	40

† Ceiling price. ‡ Nominal.

§ Shipping point. ¶ Delivd.

Pittsburgh

(Delivered)	
No. 2 heavy melting	1.00
No. 1 bundles	1.00
No. 2 bundles	1.00
Machine shop turnings	5.00
Shovel turnings	3.00
No. 1 cupola cast	16.00
Heavy breakable	43.00

San Francisco

(Delivered)	
No. 2 heavy melting	27.00
Machine shop turnings	12.00
No. 2 bundles	27.00
No. 1 cupola cast	44.00

Seattle

(Delivered)	
No. 1 heavy melting	33.00
(F.o.b. shipping point)	
No. 1 bundles	31.00
No. 1 cupola cast	36.00
Heavy breakable	31.00
Unstripped motor blocks	31.00

St. Louis

(Delivered)	
No. 1 cupola	48.00
Unstripped motor blocks	37.00
Youngstown (Delivered)	
No. 2 heavy melting	43.00
No. 2 bundles	43.00
Machine shop turnings	34.00

HAMILTON, ONT.

(Delivered Prices)	
Heavy Melting	\$35.50
No. 1 Bundles	25.50
No. 2 Bundles	36.50
Mechanical Bundles	31.50
Mixed Steel Scrap	22.50
Mixed Borings, Turnings	35.50
Rails, Remelting	44.50
Rails, Rerolling	30.00
Bushing	33.50
Bushing new factory: Prep'd	31.50
Unprep'd	32.50
Short Steel Turnings	50.00
Cast Iron Grades	50.00
No. 1 Machinery Cast	50.00
† F.o.b., shipping point.	

Is space and weight savings vital?

*here's how leading aircraft manufacturers
get them with **NEEDLE BEARINGS***

Torrington Needle Bearings are integral design features in many leading aircraft because of their light weight and compactness coupled with high rated radial capacity.

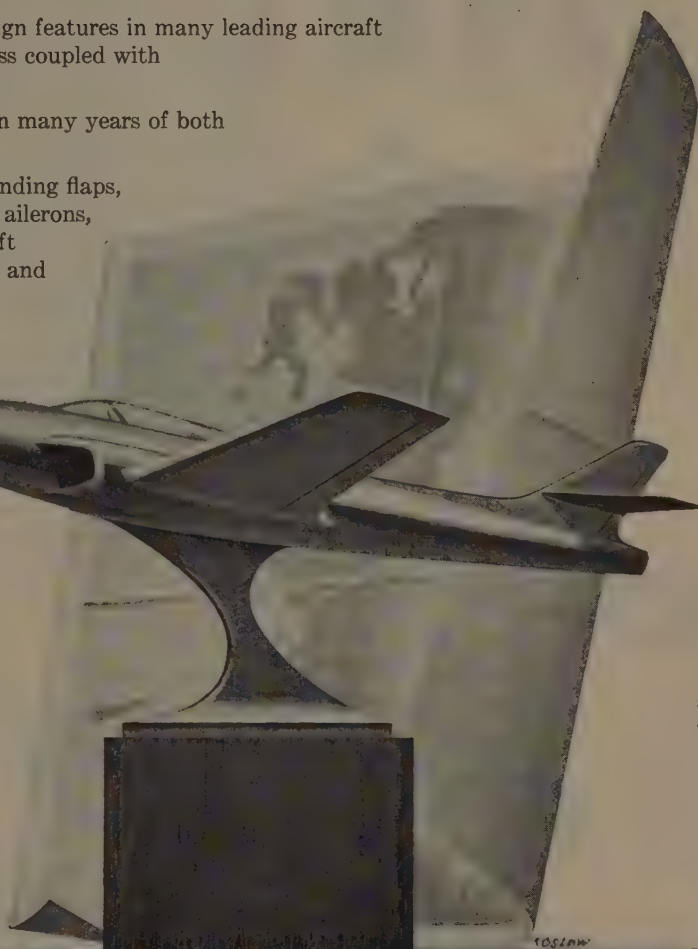
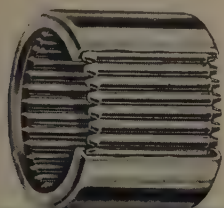
They have been *performance-proved*, too, in many years of both military and civil aviation.

Torrington Needle Bearings are used in landing flaps, leading edge slats, spoilers and conventional ailerons, elevators, rudders, and in many other aircraft assemblies where high capacity, light weight and compactness are musts.

Throughout industry, many manufacturers have made Needle Bearings "standard equipment" in countless applications since the introduction nearly twenty years ago.

Perhaps the Torrington Needle Bearing is the answer to *your* bearing problem. We gladly help you find out.

TORRINGTON COMPANY
Torrington, Conn. South Bend 21, Ind.



TORRINGTON *NEEDLE* **BEARINGS**

Needle • Spherical Roller • Tapered Roller • Straight Roller • Ball • Needle Rollers

Trade-marks of leading aircraft companies whose products enjoy the benefits of Needle Bearings.

LOCKHEED



CONVAIR

BOEING



Beechcraft



SLAB ZINC

every grade of ZINC

for urgent military and
civilian requirements

PRIME WESTERN

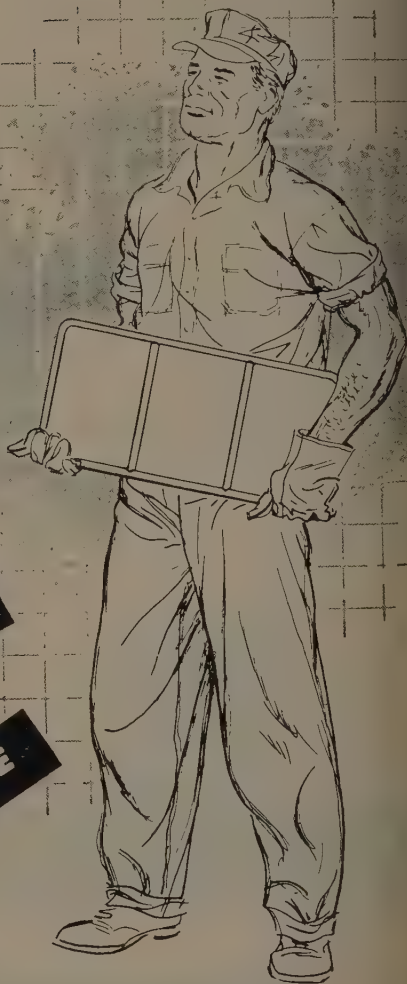
SELECT

BRASS SPECIAL

INTERMEDIATE

HIGH GRADE

SPECIAL HIGH GRADE



AMERICAN ZINC SALES COMPANY

Distributors for

AMERICAN ZINC, LEAD & SMELTING COMPANY

Columbus, O.

Chicago

St. Louis

New York

The Metal Market



Blazer in Action in Manitoba

Modern track-laying equipment is blazing a trail through the wilds of Manitoba, Canada, towards the 57th parallel where Canada is developing what may be one of the world's largest sources of copper-nickel. When completed, the \$15-million railroad, being built by Canadian National Railways, will reach from Winnipeg to the north and will carry ore worth an estimated \$14 million annually. About 60% of ore will go to North American defense production and to stockpiles

The metal market's future trend will take some of its shape from the new administration's attitude, which should unfold further in today's State of the Union message

THE TREND of the metal market will be shaped indirectly by the tone of the Union message to be given by President Eisenhower. The new administration's attitude on the defense program and on price and materials control will be reflected in new legislation and in the outlines of policy for government agencies. The specifics of implementing such legislation and policy will reach to every buyer, seller and processor of metal.

Direction — The new approach to metal problems comes at a time when metal problems are resolving themselves with, without or in spite of government help. A notable example is the case of Copper. Supplementary allocations won't be granted in February, according to NPA, and fabricators will feel the pinch.

Rumors rampant that Chile will raise selling prices up 2 to 3.5 cents are false. Here's the situation: U. S. copper companies with access to Chile sell the metal to the Bank of Chile, sole export agent, at a price based on the U. S.

market. Today that's 24.5 cents. Sales to U. S. consumers are at about 35.5 cents for Chile, which means 11 cents goes to the Chilean government for each pound sold—a gross of about \$75 million on sales to the U. S. last year.

If the U. S. copper price is decontrolled, prices here will go up and Chile will either have to be content with less than an 11-cent markup or will raise its selling price above 35.5 cents. If it follows the latter course, few buyers will be interested and the price will have to come down as metal from other sources hits the market.

Tin Tempest—Complete tin decontrol all down the line is due this week. Only the mechanics of an order have held up action this long. Regulations on such products as tin plate and tinned wire must be altered to conform with the basic order.

With use and inventory restrictions off, small users will cause the greatest buying stir. Their activities are expected to further bolster an already-firm market. Pricewise, the metal, which can't exceed RFC's sell-

ing price of \$1.215, will remain close to that level until immediate needs are satisfied. Supply will be no problem.

On the Floor—Zinc has traveled a rocky road the past eight months. Early this year enthusiasm sent the price up ½ cent. Twice since then it has been reduced by that amount. Second cut came last week, making the quotation an even 12 cents, E. St. Louis.

Incoming metal from such irregular sources as Belgium and Germany influenced the drop, but the deciding factor was weakness in prime western. Supply of galvanized steel sheets has been easing, which contributes to market jitters. Special high grade, used by diecasters, is doing well now. It was weakest of all grades last fall. Demand for brass special and high grade leaves a little to be desired.

Around the Market—Lead supply may tighten considerably toward the end of the first quarter because of smelter closings and a recent strike in Australia that cost thousands of tons in lost production. Shutdown of St. Joe's Herculeum Smelter next month will cut off about 4000 tons of lead monthly, one quarter of the company's output.

Mercury continues to waver, now is quoted at \$210-\$215 per flask.

Aluminum Expansions

Under a DPA program announced last fall, the U. S. aluminum industry would be encouraged to expand sheet, plate and foil capacity to 1,296,000 tons and heat treating capacity to 774,000 tons by 1955. Privately some in the industry doubted that it would be needed, as finishing facilities now installed aren't kept busy all the time. The need for sheet and plate is in widths 48 in. or wider, primarily tapered material for military needs. Much of this equipment for rolling it will be of little use after the defense program. Last week two expansions were announced, one for civilian-military and one for military types of aluminum.

Harvey Machine Co., sixth primary aluminum producer, will build a \$20 million rolling mill on the Pacific Coast, probably near its proposed reduction plant at The Dalles, Oreg., to produce sheet strip and circular shapes.

Reynolds Metals Co. will add machinery to its huge McCook, Ill., plant to produce wide tapered sheet and plate up to 35 feet long, under a \$7.5 million contract with the Navy.

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.

Brass Ingots: 85-5-5-5 (No. 115) 27.25c, 88-10-2 (No. 215) 40.00c; 80-10-10 (No. 305) 33.00c; No. 1 yellow (No. 405) 23.25c.

Zinc: Prime western 12.00c; Brass special 12.25c; Intermediate 12.50c; East St. Louis; high grade 13.35c, delivered.

Lead: Common 13.80c; chemical 13.90c; corroding, 13.90c, St. Louis.

Primary Aluminum: 99% plus, ingots 20.50c, pigs 19.50c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.i. orders.

Secondary Aluminum: Piston alloys 20.50c; No. 12 foundry alloy (No. 2 grade) 19.50c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 18.80c; grade 2, 18.60c; grade 3, 18.40c; grade 4, 18.20c.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt 121.50c.

Antimony: American 99-99.8% and over but not meeting specifications below 34.50c; 99.8% and over (arsenic 0.05% max., other impurities 0.1% max.) 35.00c; f.o.b. Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9% base sizes at refinery, unpacked, 60.00c; 25-lb pigs, 62.65c; "XX" nickel shot, 63.65c; "E" nickel shot or ingots, for addition to cast iron, 60.00c. Prices include import duty.

Mercury: Open market, spot, New York, \$210-\$215, per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, \$1.595 per lb of alloy, f.o.b. Reading, Pa.

Cadmium: "Regular" straight or flat forms, \$2 del; special or patented shapes \$2.15.

Cobalt: 97.99%, \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (case); \$2.47 per lb under 100 lb.

Gold: U. S. Treasury, \$35 per ounce.

Silver: Open market, New York 85.25c per oz.

Platinum: \$90-\$93 per ounce from refineries.

Palladium: \$23-\$24 per troy ounce.

Iridium: \$175-\$185 per troy ounce.

Titanium (sponge form): \$5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Casting prices, cents per pound, f.o.b. mill, effective July 1, 1952)

Sheet: Copper 45.52; yellow brass 40.17; commercial bronze, 95% 45.15; 90% 44.38; red brass, 85% 43.10; 80% 42.34; best quality, 41.35; nickel silver, 18%, 55.08; phosphor-bronze grade A, 5%, 64.71.

Rod: Copper, hot-rolled 41.37; cold-drawn 42.62; yellow brass free cutting, 33.85; commercial bronze 95% 44.84; 90% 44.07; red brass 85%, 42.79; 80%, 42.03.

Seamless Tubing: Copper 45.56; yellow brass 43.18; commercial bronze, 90%, 47.04; red brass, 85%, 46.01.

Wire: Yellow brass 40.46; commercial bronze, 95%, 45.44; 90%, 44.67; red brass, 85%, 43.39; 80%, 42.63; best quality brass, 41.64.

(Base prices, effective July 1, 1952)

Copper Wire: Bare, soft, f.o.b. eastern mills, 100,000 lb lots, 32.795; 30,000 lb lots, 32.92; l.c.l., 33.42. Weatherproof, 100,000 lb, 33.60; 30,000 lb, 33.85c; l.c.l., 34.35. Magnet wire del., 15,000 lb or more, 38.75; l.c.l., 39.50.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.i. orders. Effective Aug. 4, 1952. Published prices are subject to 4% increase, effective Jan. 22, 1953.)

Thickness Range Inches	Widths or Diameters, In., Inc.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle†
0.249-0.136	12-48	31.6	...	...
0.135-0.098	12-48	32.1	...	...
0.095-0.077	12-48	32.8	30.6	34.9
0.069-0.048	12-48	33.4	30.8	35.1
0.047-0.038	12-48	33.7	31.0	35.4
0.037-0.030	12-48	34.5	31.7	35.7
0.029-0.024	12-48	35.1	32.0	36.8
0.023-0.019	12-36	35.7	32.7	37.5
0.018-0.017	12-36	36.4	33.3	38.4
0.015-0.015	12-36	37.3	34.0	39.5
0.014	12-24	38.3	35.0	40.8
0.013-0.012	12-24	39.3	35.7	41.7
0.011	12-24	40.3	36.8	43.3
0.010-0.0095	12-24	41.4	37.9	44.8
0.009-0.0085	12-24	42.6	39.1	46.6
0.008-0.0075	12-24	44.0	40.3	48.4
0.007	12-18	45.5	41.7	50.6
0.006	12-18	47.0	43.1	55.4

* Lengths 72 to 180 inches. † Maximum diameter 26 inches.

Screw Machine Stock: 5000 lb and over.

Dia. (in.)	Round—	Hexagonal—
or distance across flats	R-317-T4	R-317-T4
0.125	54.6	...
0.156-0.0188	46.2	...
0.219-0.313	43.6	...
0.375	42.0	48.3
0.408	42.0	...
0.432	42.0	48.3
0.469	42.0	...
0.500	42.0	48.3
0.531	42.0	...
0.563	42.0	...
0.594	42.0	...
0.625	42.0	45.7
0.688	42.0	...
0.750-1.000	41.0	43.1
1.063	41.0	...
1.125-1.500	39.4	41.5
1.563	38.9	...
1.625	38.3	...
1.688-2.000	38.3	...

LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$19.00 per cwt; add 50c cwt 100 sq ft to 140 sq ft. Pipe: Full coils \$19.00 per cwt. Traps and bends: List prices plus 43%.

ZINC

Sheets 23.00c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 19.50-20.50c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 20.75-21.75c; over 12-in., 20.75-21.75c.

"A" NICKEL

(Base prices f.o.b. mill, effective Dec. 15, 1952) Sheets, cold-rolled, 79.50c. Strip, cold-rolled, 85.50c. Rods and shapes, 75.50c. Plates, 77.50c. Seamless tubes, 108.50c.

MONEL

(Base prices f.o.b. mill, effective Dec. 15, 1952) Sheets, cold-rolled 63.00c. Strip, cold-rolled 66.00c. Rods and shapes, 61.00c. Plates, 62.00c. Seamless tubes, 96.00c. Shot and blocks, 54.50c.

MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in diameter, less than 25 lb, 55.00-62.00c; 25 to 99 lb, 45.00-62.00c; 100 lb to 5000 lb, 41.00c.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, \$15; sheared mill plate, \$12; strip, \$15; wire, \$10; forgings, \$6; hot-rolled and forged bars, \$6.

Plating Materials

Chromic Acid: 99.9% flakes, f.o.b. Philad. phia, carloads 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

Copper Anodes: Base 2000 to 5000 lb; f.o. shipping point, freight allowed: Flat, roll 42.18c; oval 41.68c.

Nickel Anodes: Rolled oval, carbonized, c loads, 74.50c; 10,000 to 30,000 lb 75.50c; 30 to 10,000 lb 76.50c; 500 to 3000 lb 77.50c; 100 to 500 lb, 79.50c; under 100 lb, 82.50c. f.o.b. Cleveland.

Nickel Chloride: 36.50c in 100 lb bags; 34c in lots of 300 lb through 10,000 lb; 34c over 10,000 lb, f.o.b. Cleveland, freight allowed on 300 lb or more.

Sodium Stannate: 25 lb cans only, less 100 lb to consumers 86.7c; 100 or 350 lb drums only, 100 to 600 lb 71.60c; 700 to 1 lb, 65c; 2000 to 9900 lb, 67.30c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

Tin Anodes: Bar, 1000 lb and over, \$1.42; 500 lb, \$1.425; 200 to 499 lb, \$1.43; less than 200 lb, \$1.445. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

Zinc Cyanide: 100 lb drums, less than 5 drums 54.30c, 10 or more drums, 52.30c, f.o.b. Niagara Falls, N. Y.

Stannous Sulphate: 100 lb kegs or 400 lb drums, less than 2000 lb \$1.11; more than 2000 lb \$1.09. Freight allowed east of Mississippi north of Ohio and Potomac rivers.

Stannous Chloride (Anhydrous): In 400 lb, \$1.25; 100 lb kegs \$1.26, f.o.b. Carteret, N. J. Freight allowed on 100 lb or more.

Scrap Metals

Brass Mill Allowances

Casting prices in cents per pound for less than 20,000 lb, f.o.b. shipping point effective Jan. 26, 1951.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	21.50	21.50	20.00
Yellow Brass	19.125	18.875	17.50

	Clean Heavy	Rod Ends	Clean Turnings
Commercial Bronze	20.50	20.25	19.00
95%	20.50	20.25	19.00
90%	20.50	20.25	19.00

	Clean Heavy	Rod Ends	Clean Turnings
Red Brass	20.25	20.00	19.00
85%	20.25	19.875	19.00
80%	20.25	19.875	19.00

	Clean Heavy	Rod Ends	Clean Turnings
Muntz metal	18.125	17.875	17.50

	Clean Heavy	Rod Ends	Clean Turnings
Nickel silver, 10% ..	21.50	21.25	20.00

	Clean Heavy	Rod Ends	Clean Turnings
Phos. Bronze, 5% ..	25.25	25.00	24.00

Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than 40,000 lb f.o.b. point of shipment)

Group I: No. 1 copper 19.25; No. 2 copper wire and mixed heavy 17.75; light over 16.50; No. 1 borings 19.25; No. 2 borings 17.75; refinery brass, 17.00 per lb of dry Cu content for 50 to 60 per cent material; 17.25 per lb for over 60 per cent material.

Group II: No. 1 soft red brass solids 19.00; No. 1 composition borings 19.25 per lb of Cu content plus 63 cents per lb of tin content; mixed brass borings 19.25 per pound of Cu content plus 60 cents per lb of tin content; unlined red car boxes 18.25; lined red car boxes 17.25; cocks and faucets 16.00; red brass screens 16.00; zincy bronze solids and borings 16.25.

Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment, less than 5000 lb)

Segregated plant scrap: 2s solids, copper-free, 10.50; high grade borings and turnings, 50; No. 12 piston borings and turnings, 50. Mixed plant scrap: Copper-free solids, 90; dual type, 9.00. Obsolete scrap: Pure old cable, 10.00; sheet and sheet utensils, 7.25; old castings and forgings, 7.75; clean pistons free of struts, 7.75; pistons with struts, 5.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Lead: Heavy 10.75; battery plates 5.50; 75; Inotype and stereotype 12.50; electrolytic 10.75; mixed babbitt 13.75.

Zinc: Old zinc, 5.00; new die cast scrap, 6.00; old die cast scrap, 4.00-4.25.

DAILY PRICE RECORD

1953	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
Jan. 27-29	24.50	13.80	12.50	121.50	20.50	34.50	60.00	85.25
Jan. 22-26	24.50	13.80	12.50	121.50	20.50	34.50	60.00	85.25
Jan. 16-21	24.50	13.80	12.50	121.50	20.00	34.50	60.00	85.25
Jan. 15	24.50	13.80	12.50	121.50	20.00	34.50	60.00	84.75
Jan. 14	24.50	13.80	12.50	121.50	20.00	34.50	60.00	84.25
Jan. 13	24.50	13.80	13.00	121.50	20.00	34.50	56.50	83.75
Jan. 12	24.50	13.80	13.00	121.50	20.00	34.50	56.50	83.25
Jan. 7-11	24.50	14.30	13.00	121.50	20.00	34.50	56.50	83.25
Jan. 2-6	24.50	14.55	13.00	121.50	20.00	34.50	56.50	83.25
1952								
Dec. Avg.	24.50	13.925	12.50	121.50	20.00	34.50	56.50	83.25
Nov. Avg.	24.50	13.965	12.50	121.50	20.00	34.888	56.50	83.25
Oct. Avg.	24.50	14.228	13.259	121.50	20.00	39.00	56.50	83.25
Jan. 1952 Avg.	24.50	18.80	19.50	109.404	19.00	50.00	56.50	88.00
Jan. 1948 Avg.	21.50	14.825	11.066	94.00	15.00	33.00	33.75	74.625

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9% base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

Steel . . .

York—Production of alloy pigots and castings, including . . . totaled 9,108,335 net tons . . . a decrease of 1,016,252 tons . . . 1951 output, according to the . . . an Iron & Steel Institute. The . . . 10 per cent in output in 1952 . . . to loss of production during . . . one-July work stoppage last . . . Alloy steel production last . . . as 9.8 per cent of total steel . . . comparing with 9.6 per cent . . . and 8.9 in 1950.

ts, Strip . . .

and Strip Prices, Page 169 & 170

land—No letup in consumer . . . for sheets and strip is in . . . respect. The mills are doing . . . rest to meet customers' re- . . . nts but the order load, com- . . . by heavy carryover tonnage . . . st quarter, is just too heavy. . . ons are there will be a heavy . . . r from first to second quar- . . . fact, most producers expect . . . demand will be experienced . . . remainder of the year. Some . . . ave not recovered from the . . . tonnage resulting from last . . . 's steel strike. Larger output . . . possible by the increase in . . . lishing facilities is more than . . . ejoy the current surge in de- . . . equirements on civilian goods . . . are exceptionally pressing . . . oared with a year ago. Man- . . . ers of appliances, stoves and . . . oles are taking in every . . . f steel possible.

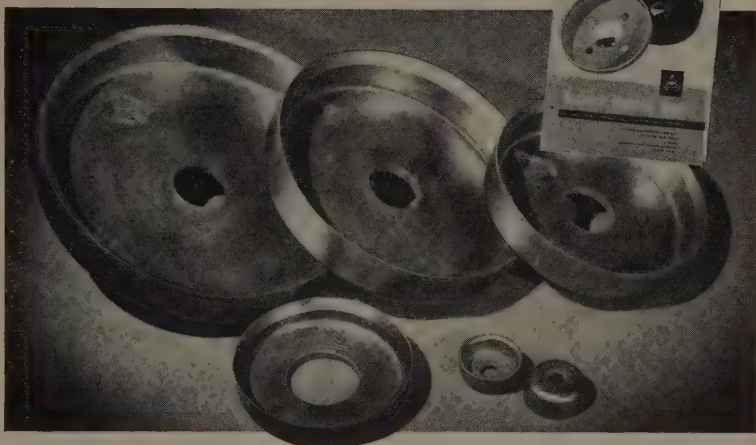
York—First quarter schedules on . . . ed sheets have been set back. . . eable March volume is includ- . . . h points to heavier carryover . . . ond quarter than expected. . . ns in the 400 series is being . . . k heavily for second quarter . . . ducers of this grade already . . . to June, notably strip. Car- . . . ets are booked into second . . . as far as producers are will- . . . accept orders. Only easing . . . in galvanized.

York—Sheet producers are . . . cautiously on second quarter . . . nents. Some have no more . . . cold-rolled tonnage to offer . . . mercial account, although . . . ay be some spot openings . . . On galvanized they are not . . . tly booked and consumers . . . ot have too much difficulty . . . orders for June, even late . . . Stainless sheet promises are . . . extended either. This ap- . . . only to the straight chrom- . . . des, but to nickel chromium. . . elphia.—Sheet sellers are . . . for second quarter on a se- . . . asis and in the process are . . . away substantial tonnage, . . . y in hot and cold-rolled car- . . . ts, silicon sheets and enamel- . . . k. Even in coated sheets some . . . appears, are not able to ac- . . . the tonnage offered although . . . for galvanized is not as . . . us for the other grades.

burgh—Tight supply condi- . . . continue for cold-rolled sheet . . . ip. Non-integrated producers . . . not about the tonnage rep- . . . hot bands, but of the range . . . which makes it difficult to . . . ficient tonnage of the most . . . after sizes.

go—There is little indication

New Garlock Molded Cups Folder describes in detail our complete line of cups. Write for your copy today!



GARLOCK MOLDED CUPS

For Pump Pistons—

Hydraulic Service—

Pneumatic Equipment

A COMPLETE LINE OF CUPS FOR INDUSTRIAL USE

GARLOCK Molded Packing Cups are made from the highest grade materials to rigid specifications for *long, trouble-free service*. These cups are made in many types and styles, each designed and constructed for a specific service condition.

BITAN* Leather Cups, available for practically any cylinder diameter size, are recommended for use against cold and hot water, oils, gases, and solvents. For hot oil service up to 250°F., specify synthetic-rubber-impregnated Bitan leather cups.

Rubber and Synthetic Rubber Cups with fabric insertion are made in a wide range of material combinations for cylinder diameters from less than 1/2" up to and including 16". For service against air at high or low pressures, against oils, and on heavy duty hydraulic equipment.

Cups for Pump Pistons are available for standard cylinder sizes.

*Start cutting maintenance and replacement costs now—
standardize on Garlock Molded Cups.*

THE GARLOCK PACKING COMPANY, PALMYRA, NEW YORK
In Canada: The Garlock Packing Company of Canada Ltd., Toronto, Ont.

*Registered Trademark



GARLOCK

PACKINGS, GASKETS, OIL SEALS,
MECHANICAL SEALS, RUBBER EXPANSION JOINTS

now that demand for sheets will diminish soon. Only in galvanized is there any easing but this may evaporate by spring. Pressure for hot and cold-rolled sheets is great and comes from all consuming areas. Recently there has been considerable pickup in demand for electrical sheets.

Birmingham—Demand for cold-rolled sheets continues strong but some easing in pressure for galvanized is noted. Some market observers expect no material change in the cold-rolled supply situation before end of the year. Strip demand is moderate.

Los Angeles—Heavier imports from Japan have forced European steel almost out of the West Coast market on galvanized sheets, black sheets and plate.

Steel Bars . . .

Bar Prices, Page 169

New York—Hot carbon bar producers are running well behind on commitments for bars, one-inch and over. One large producer is behind about six weeks on promises in the larger sizes. In certain cases, April has been blanked out entirely on nondefense business; and now in some cases a substantial portion in May is being blanked out. Several producers, booking on a month-to-month basis, are only opening their books now on commercial tonnage for that month. Stringency continues in hot alloy bars, although mills that have opened for the entire quarter, report they can still accept some tonnage for rolling before end of that period. Also, producers of small hot carbon bars, who have opened books for the entire second quarter, say they have space for additional tonnage.

Boston—Slight easing in bar supply is limited to stock under 1-inch. The improvement is more pronounced with warehouses than with consumers. With military set-asides and warehouse and converter allocations fixed, commercial tonnage openings are narrowed. But converters are getting allotments and some extras which help users of cold-finished 2-inch and under.

Philadelphia—Although there is some easing in supply of small sizes, tonnage in hot-rolled carbon bars 1-inch and larger is scarce. Most mills were unable to accept much new commercial tonnage for April because of carryovers and government regulation set-asides. Where they are booking on a month-to-month basis and are now opening for May they are unable to meet anything like the volume of demand offered.

Pittsburgh—Supply of cold-finished bars is tight with non-integrated producers receiving hot bar tonnage only on directives. Further tightening is reported in alloy bars. Pressure for cold-finished is greatest from the automotive industry.

It is now reported stocks of hot-rolled bar users are improving, although no one yet has a substantial inventory. Hardest pressed are machine tool manufacturers, forging producers and cold-finishers.

Cleveland—Bar mills anticipate no letup in demand pressure on military and defense account for months to come. Stringency in supply, especially in the larger sizes, is expected to be

a troublesome factor in procurement on civilian goods account through most of the year. Meanwhile, supplies of small sizes are improving steadily. In connection with the bar shortage, results of the first phase of a 3-pronged study of finished steel capacity by the Defense Production Administration, shows net shipments of hot-rolled bars, including tube rounds $1\frac{1}{2}$ to $9\frac{1}{2}$ inches, in 1950 were 5,845,000 net tons, but due to the capacity expansion since outbreak of the Korean war, maximum possible annual production at conclusion of the expansion program, currently nearing completion, will be 21,538,000 net tons. Maximum production of cold-finished bars $1\frac{1}{2}$ inches and over when the expansion program is completed is placed at 2,307,000 net tons. Cold-finished shipments in 1950 totaled 552,000 tons.

Los Angeles—Cold-drawers are booked through March on carbon bars and through April on specialty and alloy grades.

Plates . . .

Plate Prices, Page 169

Philadelphia—Sheared plate producers look for a strong market throughout the greater part of the year. Some mills that opened books for the entire second quarter are no longer accepting nondefense work for that period. Spot openings may appear later. Mills booking on a month-to-month basis now have opened for May tonnage. Reflecting general strength in plates is the fact while deliveries against commitments are falling well behind in various instances, consumers thus affected are not canceling their orders for the reason they can't do better elsewhere.

Boston—Sheared and universal plate mill schedules are filled through May. Numerous consumers with tickets have not yet placed them for second quarter. Potential for any increase in June tonnage is doubtful. Consumer inventories of heavier and wider plates are down to 30 days in some cases, but those able to utilize narrow and lighter strip mill plates are better off with stocks for 45 to 60 days.

New York—Plate producers, booking on a month-to-month basis, are opening books for May on nondefense tonnage. Space is short of requirements, particularly in the heavier gages of sheared plate. Most mills see little improvement in heavier gages before third quarter.

Pittsburgh—Most open space on books of steel plate producers has been filled. Strong business is expected through third quarter. Only mills with open space are those charging the tonnage premiums.

Chicago—Plate fabricators report a volume of bookings which assures a tight supply situation for plates throughout 1953. It is the heavy and wide product that causes most concern.

Seattle—Shell Oil Co. is adding 296,000-barrel storage capacity to its Harbor Island terminal tank farm, tanks being fabricated by Chicago Bridge & Iron Co. Unconfirmed report is to the effect 6000 tons of plates for a classified project at Hanford, Wash., will be rolled at Geneva and Fontana for Kaiser Engineering Co.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 169

Los Angeles—Military construction in southern California, southern Nevada, and Arizona of \$100 million valuation, to get underway in first and second quarters, will sustain demand for reinforcing steel structural materials.

Seattle—With mild weather permitting construction activities on larger than seasonal scale, inquiry for small tonnages of reinforcing bars continues strong. District reinforcing mills are engaged at capacity.

Structural Shapes . . .

Structural Shape Prices, Page 169

New York—Structural steel contracts in December amounted to 236,264 tons, against revised figure of 144,001 tons in November at 184,331 tons in October, reports the American Institute of Steel Construction. This brought the total for year to 2,503,521 tons against 2,307,072 in 1951, and 2,370,040, the average for 1947-1950 inclusive.

December shipments were 225,1 tons against 223,662 as revised in November, and 262,730 as revised in October. Total shipments for year were 2,664,255 tons against 2,702,262 the preceding year.

Backlog as of Dec. 31 was 2,171 tons compared with 2,670,202 on Dec. 31, 1951.

New York—Substantial public work, notably highway requirements, is noted. Latest sizable inquiry involves 9455 tons of structural steel for the bridge over the Raritan river, Middlesex county, New Jersey, in connection with the Garden State parkway. Commercial work lags due in part to governmental restrictions.

Boston—Total tonnage of pin material in fabrication shop inventories is substantial, but spot tonnage in sizes for current estimates is out of balance. District shop backlogs average close to three months with delivery a growing factor in placement of contracts. Some shops are filling inventory gaps with foreign steel. Prices on fabricated material cover a wider range, the general trend being toward somewhat lower quotations as competition sharpens.

Philadelphia—Fabricators rent difficulty obtaining wide flange shapes, particularly between 6 and 16-inches inclusive. Shipments are running well behind promises. Fabricators are unable to build up inventories to anything like normal although they have made some headway. There continues a preponderance of public work, notably bridges and other large projects.

Cleveland—Substantial volume of public work in sight in this general area brightens the building steel market outlook for coming months. Numerous school and similar public projects are actively before fabricators. First step toward construction of an \$80,000 incinerator was taken last week by the Berea, O., council. Contract is being entered into with Damon Worley & Saneis & Associates for architectural and engineering plans. Another Cleveland suburb, Bedford, will ask for bids

for the construction of 17
as part of a high school.
Angeles—Valuation of con-
in progress in southern
is estimated at \$762,833,
including \$99,665,200 of highway
way construction, \$127,481,
Army and Navy construction,
municipal construction of \$68
Valuation of school con-
is \$115 million, and hospi-
million. Private work totals
million.

San Francisco—Golden Gate bridge
have voted to spend \$3,
to strengthen the span. It is
and 4750 tons of structural
be needed.

—Demand for structural
is strong. Heavy placements
ected with the opening of bids
arter by U.S. Engineers for
installations in Alaska and
fic Northwest. Federal agen-
ortedly have allocated 2828
shapes for a proposed Tacoma
ery.

Wire Prices, Page 171

—With few exceptions where
for the finished product
y, notably upholstery wire
omotive goods, consumers of
wire are not pressing too hard
second quarter. Manufacturers'
heading wire are available
April-May delivery, although no
difficulty is expected in fill-
second quarter capacity on most
products.

York—High carbon wire
for second quarter indicate
schedules for the period. De-
rior valve spring and other
the automotive industry is
with second half buying de-
cline on heavy sale of cars as-
bl in the first six months. Auto-
demand is relatively higher
neral industrial buying, but
lar is substantial. Slight im-
vement is recorded in textile
pment buying; also in music

Pittsburgh—Manufacturers' wire
tirs to dominate activity in
ducts. Merchant items, with
phs on nails, are the weakest.
Birmingham—Demand for most
products is holding up well.
Manufacturers' wire continues in rela-
tively tight supply but there has
been some easing in certain other
ducts, notably nails.

Metallurgical Coke . . .

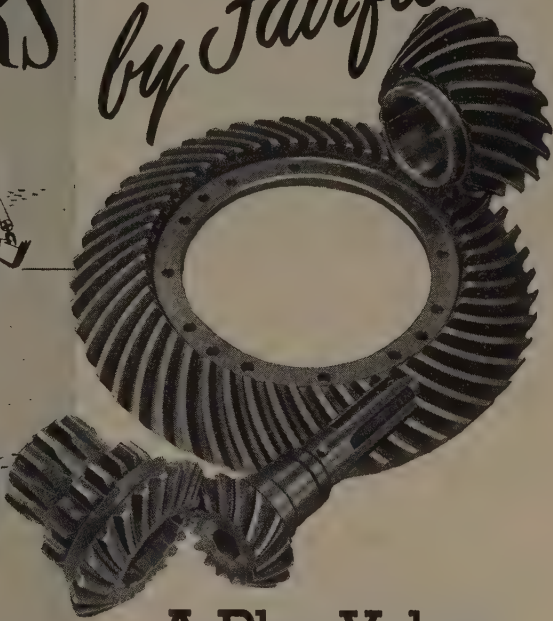
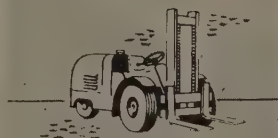
Metallurgical Coke Prices, Page 173

Pittsburgh—Surge of interest in
met coke has added vigor to
market in the Pittsburgh dis-
quiries are being received for
coke also. Coke is currently
at a faster rate than two
ago despite continuing slug-
gish activity.

St. Louis—Construction is ex-
pected to be started soon on a 76-
7-products coke plant for
Crown Sheet & Tube Co. at its
mill works. Wilputte Division,
DuPont & Chemical Corp., has
contract. Drawings are about
completed and brick has been ordered
for unit. About 450,000 tons of
coke will be added to Camp-
bell's capacity. Estimated cost
about \$10 million.

GEARS

by *Fairfield*



A Plus Value in Any Product!

IF GEARS are a part of the
machines you make, there is no
finer recommendation for YOUR
PRODUCT than to be able to say
it is "Equipped with FAIRFIELD
GEARS!"

At Fairfield, your gears are in the
hands of specialists equipped with
every modern facility for producing
fine gears efficiently and eco-
nomically. *For the Best in Gears,
Specify Fairfield!*

Gears made to order:

SPUR • HELICAL • HERRINGBONE • SPIRAL BEVEL
STRAIGHT BEVEL • HYPOID • ZEROL • WORMS and
WORM GEARS • SPLINED SHAFTS • DIFFERENTIALS

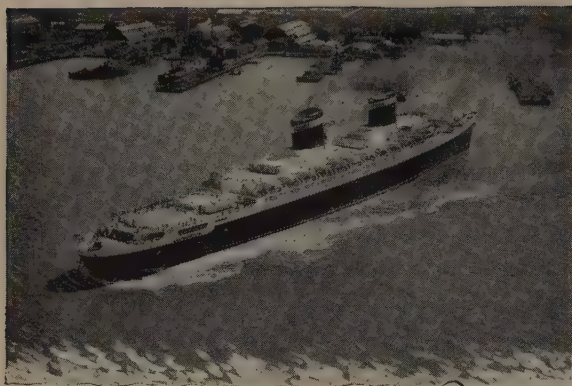
FAIRFIELD

MANUFACTURING CO.

2313 So. Concord Rd.
LAFAYETTE, IND.

Send for
Illustrated Brochure





**A POTATO
never had it
so good!**



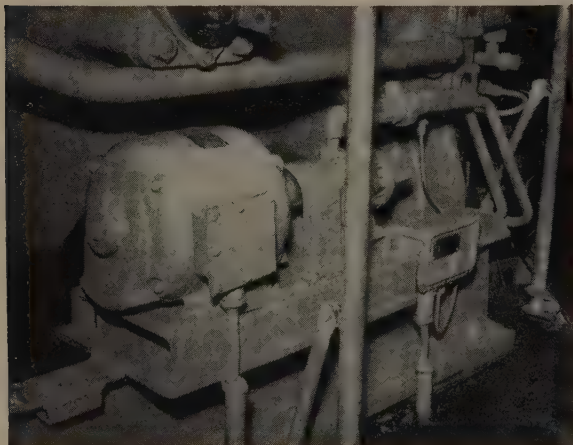
Even the supplies ride first class on the S.S. United States. Many of the motors powering York air conditioning equipment are Wesche designed and built. They are Marine type Class C drip proof motors ranging from 1/15 to 2½ H.P.

On many lesser vessels passengers' quarters, and maybe even the champagne room gets air conditioning. But in this ship the order for one Wesche motor was for "the potato room." The first time you ride the United States "live it up," friend, you're eating Idaho-York-Wesche air conditioned potatoes.



Send for the Wesche catalog of torque and special motors of all types and sizes.

THE B. A. WESCHE ELECTRIC CO. (Welco)
1621 VINE STREET • CINCINNATI 10, OHIO



**MORE SCRAP MOVE
FASTER**

from PIE
to BALIR

**WITH OWEN
GRAPPLES**



and with a lower operating cost, too. Widespread acceptance by scrap handlers everywhere, based on performance exceeding all other scrap handling methods, makes it imperative that you INVESTIGATE OWEN SCRAP GRAPPLES.

THE OWEN BUCKET COMPANY

6012 BREAKWATER AVE.

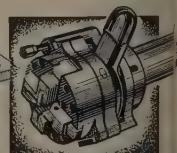
CLEVELAND, OHIO

BRANCHES: New York, Philadelphia, Chicago, Berkeley, Calif.



famous

for accuracy and
straightness of threads, low chaser costs,
less downtime, more pieces per day.

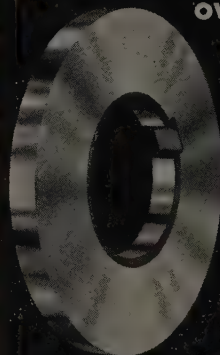


THE EASTERN MACHINE SCREW CORP., 22-42 Barclay Street, New Haven, Conn.
Pacific Coast Representative: A. C. Berbringer, 334 N. San Pedro S. Lot
Angeles, California. Canada: F. F. Barber Machinery Co., Toronto, Canada.

COWLES

GANG SLITTING KNIVES

OVER 30 YEARS EXPERIENCE



Standard for Service
and Durability
Ground to extremely
close Tolerances and
Finish. Made by
Toolmakers.

COWLES

TOOL COMPANY

2086 W. 110th ST. CLEVELAND 2, OHIO

Iron . . .

Pig Iron Prices, Page 168

New York—Blast furnace production in December, totaling 6,36 net tons compared with 6,88 in November, according to American Iron & Steel Institute. In December, 1951, total output was 3,40 tons.

total production in December, 1,36 tons were pig iron and 0 tons ferromanganese and spiegel. This compares with 6,155, tons of pig iron and 71,723 tons ferromanganese and spiegel in November. In December, 1951, pig iron production amounted to 5,912,567 and ferromanganese and spiegel 4,773 tons.

December production brought the blast furnace output for 1952 1,158,591 tons, of which 61,528, tons were pig iron and 629,926 ferromanganese and spiegel. These figures compare with total production for 1951 of 71,232,761 of which 70,487,380 tons were iron and 745,381 tons ferromanganese and spiegel.

	Pig Iron (net tons)	Ferromanganese and Spiegel (net tons)	Total Blast Furnace Output (net tons)
December . . .	6,155,565	71,723	6,227,288
November . . .	6,436,136	73,400	6,509,536
December . . .	61,528,665	629,926	62,158,591
November . . .	5,943,020	68,353	5,911,373
December . . .	5,912,567	64,773	5,977,340
November . . .	70,487,380	745,381	71,232,761

Output of pig iron and ferroalloys last year was the third highest in history. Production in the fourth quarter of the year was over 19.2 million tons, equivalent to an annual rate of about 77 million tons, nearly 6 million above the record established in 1951.

During the year the blast furnaces operated at 84.2 per cent of capacity. The furnace rate in December was 104.4 per cent.

New York—Extension by Washington of the inventory limitation to 30 days, has stimulated pig iron buying to some extent. There is still enough foundry to meet requirements of district users, however.

Pittsburgh—Decided improvement in local foundry demand for pig iron reported. Many small shops that have been working on curtailed orders are calling for larger tons.

Philadelphia—The Chester, Pa., plant, a Barium Steel property, blown out recently for relining. The merchant producer with annual capacity of 200,000 tons, this stockpile down about two months, thus contributing to the general stringency in iron.

Foundry iron is in good supply there is an easier trend in offerings. Dutch iron is available for first quarter at prices not in excess of the domestic market. Some feeling out of the market regarding 50,000 tons of Scandinavian off-grade iron is reported. It is said to be low in manganese and high in sulphur. Some consumers have sounded out on purchase of this material at scrap level, however, no firm offerings have been made by the owners. The iron is said to have been produced by an integrated steel plant which has

not yet brought its steel melting units into operation.

Pittsburgh—Relatively light demand prevails for foundry pig iron compared with a year ago. Reason is the continuing slow demand from foundries.

Cleveland—Although demand pressure on the merchant iron sellers is not what it was a year ago, they are disposing of all their production. Solicitation of business is being more aggressively pushed, however, with foundry operations generally continuing on the sluggish side. Recent upping of foundry inventory limitations to 60 days from 30 has not resulted in any noticeable increase in stockpiling by these consumers.

St. Louis—Granite City Steel Co.'s two blast furnaces are at full 1150-ton daily production rate. No. 2 furnace, shifted a month ago to foundry iron to meet a temporary stringency, has been returned to basic. Consumer allotments remain unchanged. Ground stocks at the furnaces are being built up slightly.

Birmingham—Pig iron consumers, for the most part, are faring well with respect to supplies, especially since the slowing down of the foundry industry generally.

Tin Plate . . .

Tin Plate Prices, Page 170

Chicago—Major canmakers in this area are putting pressure on tin plate producers for more tonnage. Appraisal is that demand is stronger here than elsewhere and that consumers

are seeking supply entailing less delivery charges.

San Francisco—Entire 1953 output of Kaiser Steel Corp.'s new tin plate mill at its Fontana, Calif., plant has been purchased by western container manufacturers.

Tubular Goods . . .

Tubular Goods Prices, Page 173

Chicago—Present outlook is that heavy tubular goods will be among the last steel products to ease supplywise. This is because of close relationship to the plate shortage. Producers of gas line pipe up to 30-inches are booked solidly into first quarter next year. Some tonnage of up to 16-inch is still available for fourth quarter. Second quarter schedules for seamless tubing are filled but there are openings for electric welded.

Boston—Light wall welded tubing prices are softening with more tonnage offered by secondary producers, small mills supplying their own needs and offering surplus in the open market. This is limited to low carbon largely with demand for stainless sustained at firm prices. Merchant steel pipe stocks, butt-welded notably, are in better balance with distributors.

Cleveland—Pipe jobbers are continuing to take in all the tonnage possible in anticipation of active building requirements through the year. Butt-welded supplies are reported improved but seamless is tight and prospects are not promising for any material easing in the situation be-

KRANE KAR CAN CLEAR LOW SHOP DOORS!

SWING-BOOM CRANE

VERSATILE YARD CRANE LIFTS, SWINGS, AND SPOTS MATERIALS— INDOORS AND OUTDOORS



Carrying Large Gear Through Shop Door at Bucyrus-Erie Plant, Hibbing, Minn. 1½, 2½, 5, 10, & 12½ Ton Cap.

Powerful, compact KRANE KAR moves materials through doors 8 ft. high, 8½ ft. wide! Amazingly flexible, reaches for loads behind stockpiles, over walls and sides of RR cars, below ground-level, more than 30 ft. high. Simultaneously travels, swings boom, raises/lowers load. Combined with many safety features, stability without stabilizers, superb traction on all types of terrain, KRANE KAR is the most economical Yard Crane you can buy. One manufacturer reports Monthly Savings of \$478.03. Ask for Bulletin No. 79A.



Gas or diesel, 9 to 37 ft. booms or adjustable telescopic booms, pneumatic or solid rubber tires; clamshell buckets, electric magnets, all-weather cabs, and other accessories.

USERS: Republic Steel, American Steel & Wire, Carnegie-Illinois Steel, Lima Locomotive, Food Machinery, etc.

Pioneer Mfrs. of Heavy Duty Materials-Handling Equipment
... LIFTTRUK Fork Lift Trucks, KARRI-GO Front-Boom Cranes
... Cranes for Motor Trucks ... Capstans and Single and Double Drum Winches.

SILENT HOIST & CRANE CO. 849 63rd ST., BROOKLYN 20, N.Y.

Ingersoll specializes in . . .



Heat-Resisting STEELS



STEEL DIVISION

BORG-WARNER CORPORATION

310 South Michigan Avenue, Chicago 4, Illinois
Plant: New Castle, Indiana

mechanical
POWER PRESSES
FOR
ALL INDUSTRIES

ZEH & HAHNEMANN CO.

56 AVENUE A, NEWARK 5, N. J.



Send your prints
or sample blanks
for quotation.

DAYTON ROGERS

Manufacturing Company

World's Largest Producer of
**LOW COST, PRECISION
DIE CUT STAMPINGS
IN SMALL LOTS**

The Stamping illustrated was produced by our patented process at cost of:

\$58.00 for the first 100 pieces

8.30 for each subsequent 10 plus actual market price of material. Your stampings of any size or shape up to $\frac{3}{8}$ " thick can be produced in proportion to this price.

2832 13th AVE. S

• MINNEAPOLIS 7, MINNESOTA



**ARTUS
PLASTIC
SLITTING
MACHINE
SHIMS**

**COST JUST A FRACTION
OF METAL SPACERS**

**THE COLOR TELLS
THE THICKNESS**

**ALWAYS RETAINS
UNIFORMITY AND
EVENNESS UNDER ALL
NORMAL CONDITIONS**

Save Time! Save Money!

INDUSTRIAL PRODUCTS SUPPLIERS

201 South Dean Street
Englewood, N. J.

FORGINGS

HAMMERED STEEL FORGINGS

up to 6000 lbs. each

ALL TYPES

Smooth Forged
Finished

Rough Turned
Hollow Bead

and Heat Treated to Specifications
CRANKSHAFTS, CONNECTING RODS, SHAFTING
Roll—Gear Blanks—Pinions and Miscellaneous Forging

BAY CITY FORGE CO.

ERIE, PA.

Over a Quarter of a Century of Dependable Service and
Quality Products

third quarter, if then. Indica-
of the strong demand for tubu-
oods is the fact the Petroleum
nistration for Defense last week
nced it had allocated only
72 tons of steel casing and tubu-
1695 oil and gas operators for
second quarter. This is less than
rd of the 1,086,724 tons which
been requested by these con-
s.

tle—Cast iron pipe agencies re-
little interest in the market. Small
re moving out of stock.

Scrap . . .

Scrap Prices, Page 176

(Cleveland—Steel grades of scrap
moving steadily to the mills on
commitments but new buying is
sted. Still, the market continues
play strength with dealers' yard
reported relatively light and
material coming out at a
pace than it was in December.
mill reserves are reported
hing due to heavy consumption
ingot operations booming along
capacity pace, the steelmakers are
ably more selective in accept-
onage. While prices on steel
s hold at ceiling levels, turn-
are moving sluggishly and dis-
some signs of easiness. The cast
s continue weak, reflecting lack
of buying interest on the part
undries. Not much change in
t conditions is expected over
xt several weeks.

York—There is little zip to
demand at present. Consum-
ers not pressing for tonnage with
inter now well along and stocks
good. Cupola cast prices have
ed, brokers now offering to pay
re than \$40.

falo—The scrap market is slug-
with the mills not buying
vely, content to work off large
e stocks. Fresh yard receipts
ght and the market continues
but dealers are somewhat
ed by the lack of buying.

Philadelphia—Buying flurry in
ng box cast scrap at Morris-
Pa., has subsided, with result-
asing in several cast grades.
ng box cast is quoted \$45 to
elivered, and stripped motor
\$38. Incidentally, the Morris-
lant is lighting up a third open
this week. Steel scrap prices
ue at ceiling, with supply and
d in balance.

Pittsburgh—Aside from two mills
l on the fringe of the Pitts-
district, no buyers of open
grades of scrap are active in
arket. These mills are selective
what they take. Cupola cast
are still looking for a market.

Louis—Open weather is stimu-
shipments but buying by brok-
tapering. Dealer stocks are de-
and yards are oversold. Mills
uncomfortable and are taking all
ffered, except for limiting the
r of bundles they will accept
g as there is no price differ-
on between bundles and No. 2
Various mills supplied through-
istrict are paying springboards
g as much as \$3 in an effort
ng in quality scrap from rural
Cast scrap demand is slow
rices nominal. Quotations vary
. Premium grades of foundry
are in tight demand due to
i railroad offerings.

Birmingham—Most shipments of
scrap in this area are against com-
mitments. New buying of melting
steel is increasingly selective. Bulk
of the cast scrap moving is No. 1
cupola, still quoted at \$44 to \$45.

San Francisco—District mills have
dropped their buying prices for open-
hearth grades of scrap \$2 per ton,
except for No. 1 heavy melting which
remains at \$34, the ceiling price. No.
2 heavy melting and No. 2 bundles
are now quoted \$27, which is \$7 un-
der ceiling, and turnings \$12, or \$13
under ceiling.

Los Angeles—Steelmaking scrap
prices are soft. Lower levels estab-
lished by the mills two months ago
have cut collections by 15 to 18 per
cent.

Seattle—Large scrap consumers
have comfortable inventories and an-
ticipate no winter shortage. With
Canadian scrap now available poten-
tial supply is considerably enlarged.
One buyer imported 1000 tons from
Vancouver, B. C. Some Canadian
scrap is being shipped to Japan. Sales
of heavy melting steel \$2 under ceil-
ing are reported. Navy yard recent-
ly sold 1000 tons of unprepared scrap
at \$24, and 800 tons of prepared at
\$31.88. For No. 2 prepared \$31 is
quoted. Cast iron ranges from \$29
to \$31 and is in excess of demand.

Iron Ore . . .

Iron Ore Prices, Page 175

Cleveland—Iron ore shippers are
hoping for an early opening of na-
vigation on the Great Lakes in the
1953 shipping season. The open win-

ter experienced so far, however, pro-
vides no assurance that the ships will
be moving up and down the lakes
any earlier this year than in other
seasons. A late winter blast, often
experienced in the past, can change
prospects overnight and the lake
shippers are acutely conscious of that
fact.

No shortage of ore is threatened
at present, despite the loss of ton-
nage movement last summer due to
the steel strike. Stocks on lower
lake docks and at the furnaces at the
opening of the year were reported at
45,171,753 tons, about 1,400,300 tons
more than were on hand at the be-
ginning of 1952. Based on latest re-
ported monthly consumption of 8,-
219,924 tons, stocks should be suf-
ficient to support full blast furnace
operations into May.

Shortages of certain grades are be-
lieved certain to be experienced be-
fore then, however. Also, it is re-
ported in ore trade circles, that at
least one furnace already is con-
cerned about its supplies with its
reserve stocks dwindling rapidly. The
lake fleet brought down 74,910,798
tons of ore in the 1952 season, a
sharp drop from 89,092,012 in 1951.
For 1953, shippers reportedly have
set their sights for a 105-million-ton
movement.

Carson City, Nev.—Nevada mines
shipped more than 2 million tons of
high grade iron ore to Japan in 1952,
according to Mervin Gallagher, state
mine inspector. He said Nevada out-
put will be increased substantially in
1953 with operations to be started in
the Gabbs region by George Green
Mining Co., Willets, Calif.

A-1033



EASTON

EASTON experience covers small
and large capacity furnace cars
for every requirement.

Furnace Cars

Electric furnace car mounted on electric transfer car for
completely automatic continuous heat treating system.

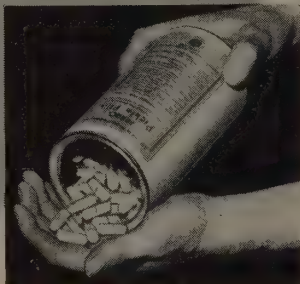


EASTON CAR & CONSTRUCTION COMPANY - EASTON, PA. - NEW YORK - PHILADELPHIA - PITTSBURGH

PICKLING TANK TEST

in 3 minutes

with
**FERRO
PICKLE PILLS**



If you can tell red from green, and count to ten, the job is easy. That's why Ferro Pickle Pills have been standard equipment in the best pickling rooms, for years. They're efficient, economical, and easy to use.

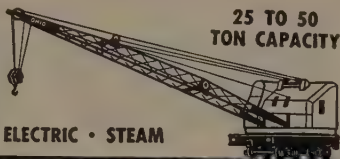
There's a Ferro Pickle Pill for almost every pickle room need; a simple, sure way of determining the solution percentage of sulphuric acid, muriatic acid, alkali and metal-cleaning tanks... or the iron content of any of these solutions. One try will convince you. *Write today for literature and prices!*



FERRO CORPORATION
4150 E. 56TH STREET
CLEVELAND 5, OHIO

OHIO LOCOMOTIVE CRANES

DIESEL • GASOLINE • ELECTRIC • STEAM



25 TO 50
TON CAPACITY

THE OHIO LOCOMOTIVE CRANE CO.
BUCYRUS, OHIO

THE BELMONT IRON WORKS

STRUCTURAL STEEL—BUILDINGS & BRIDGES

RIVETED—ARC WELDED

Cable Address—Beliron

Engineers—Fabricators—Erectors—Contractors—Exporters

Shops—Philadelphia—Eddystone—Ryersford

Main Office: Phila. 46, Pa.

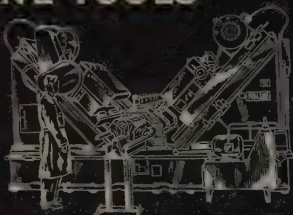
New York Office—44 Whitehall St., N. Y. 4, N. Y.



SINCE 1901 MOLINE "Hole-Hog" SPECIALLY DESIGNED MACHINE TOOLS

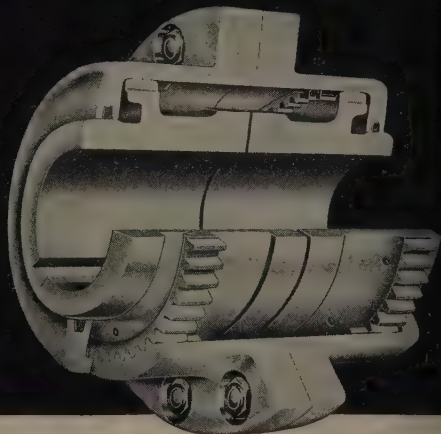
have cut production
costs for American
Industry.

DRILLING • BORING
HONING • TAPPING
and Special Machines



Boring V-8 Engine Cylinders

POOLE



A COPY OF CATALOG GIVING FULL DESCRIPTION AND ENGINEERING DATA SENT UPON REQUEST.

FLEXIBLE COUPLINGS

POOLE FOUNDRY & MACHINE COMPANY

WOODBERRY, BALTIMORE, D.

SPRINGS

STAMPINGS

WIRE FORMS



M. D. Hubbard Spring Company
604 CENTRAL AVE. PONTIAC, MICH.

The Cleveland Steel Tool Co.

• PUNCHES • DIES • CHISELS • RIVET SETS

IF IT'S RIVETED YOU KNOW IT'S SAFE

WE FEATURE SPECIAL PUNCHES & DIES
660 E. 82nd ST., CLEVELAND, O.



"WHITEHEAD
WILL HAVE DIES FOR THESE
WASHERS"

Washers are "big business" with Whitehead. Production is fast, economical. Big runs from automatic presses. U. S. Air Corps Standard washers, U. S. and S.A.E. Standards, etc. WRITE FOR CATALOG.



WHITEHEAD STAMPING CO.

1667 W. Lafayette

Detroit 16, Mich.



house . . .

Warehouse Prices, Page 175

Warehouses handling industrial steel products main-ly at higher level than distributing specialties. How- ever inventories unbalanced rdy better than 45-50 per cent normal, sales are restricted. Stocks of galvanized and small cold-finished bars proved, but distributors expe-rience difficulty in building up in-ventories on larger bars, plates, rails and sheets. Merchant wire, including nails are in ample and nail prices are none too

Philadelphia.—On a daily basis, warehouse business was on a parity with that for De- cember. There was, and continues to be, a demand for plates, shapes, cold-rolled sheets, and large-rolled carbon bars.

Birmingham.—Warehouse stocks in the Birmingham area are improving, but aren't balanced. Most ap- parent weakness is in structurals, and plates. Inquiries are good, and mostly for hand-to-mouth

Portland.—Distributors in this area are doing a volume of business which picks up well with that of pre- vious months. January volume is about on a par with that in December by some houses. While use stocks have been improv- ing some time past they are un- der and consumers still have to do considerable shopping to fill all requirements.

St. Louis.—Steel warehouses in this area are picking up inventory slowly in the products in least de- mand. These include wire items, small galvanized sheets and cold- strip. Products in strong de- mand move out immediately upon order from the mills. Most distribut- ors report an unbalance in sizes and

Los Angeles.—January warehouse business is in the same volume as in the month last year. Deliveries are improving and demand is strong.

San Francisco.—Warehouse order book holds at high level. Stocks are item to item basis run from inventory to satisfactory and com- paratively high.

Seattle.—Warehouses report strong business. Inventories continue unbal- anced below normal.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

Indiana, power plant, Madison, Ind., for Energy Commission, to Mississippi Structural Steel Co., St. Louis; Ohio Electric Corp., builder.

Pennsylvania, Delaware river extension, Penn- sylvania Turnpike Commission, Harrisburg, Pa., American Bridge and United States Steel Supply Divisions U. S. Steel Corp., Bethlehem Steel Co., Bethlehem, Pa.

Aluminum cable fabricating plant, Aluminum America, Vancouver, Wash., to Car & Foundry Co., Renton, Wash. Rainier avenue viaduct, Seattle, to Pacific Coast Steel Corp., Seattle. auto maintenance shop, Eielson Field, to Isaacson Iron Works, Seattle; Cullen Construction Co., Seattle, gen- eral contractor.

(classified) several thousand tons of billets, to Seidelhuber Steel Rolling Corp., Seattle.

STRUCTURAL STEEL PENDING

9455 tons, comprising 5197 tons for girders and bracing and 4258 tons for flooring, contract No. 45, section 7, Garden State parkway, bridge over Raritan river, Middle- sex county, New Jersey; bids Feb. 19; also 28,350 square feet of sidewalk and mall grating and 8773 linear feet of bridge railing and 113 tons of cast steel bearings.

8700 tons, superstructures, twin bridges, Cuya- hoga river, Ohio Turnpike, Summit county, Ohio, Bethlehem Steel Co., low, \$4,837,790.

2828 tons, allocated over period to Apr. 30, 1954, for proposed plant at Tacoma, Wash., of Pacific Oil & Refining Co.

1200 tons, Washington state Cowlitz river bridge; general contract to Peter Kiewit & Sons, Longview, Wash., low \$1,049,094.

900 tons, high school, Siegersville, Pa., to William P. Doall, Bangor, Pa., low on general contract.

500 tons, high school, Springfield township, Delaware county, Pa., bids Feb. 18.

135 tons, new building, Rice-Barton Co., Worcester, Mass.; E. J. Cross Co., Worces- ter, general contractor.

REINFORCING BARS . . .

REINFORCING BARS PLACED

7500 tons, Delaware river extension, Pennsylv- ania Turnpike Commission, Harrisburg, Pa., to American Bridge and United States Steel Supply Divisions, U. S. Steel Corp., and Bethlehem Steel Co., Bethlehem, Pa.

950 tons, Washington state Rainier avenue viaduct, Seattle, to Bethlehem Pacific Coast Steel Corp., Seattle; Dahlgren Construction Co., Seattle, general contractor.

REINFORCING BARS PENDING

1050 tons, bridges, New York avenue E., Washington; bids Feb. 11, director of high- ways, district government.

600 tons, including 460 tons mesh, bridges, paving and culverts, Tolland-Willington-Ash- ford and Union, Conn.; bids Feb. 9, Hart- ford.

360 tons, Washington state Cowlitz river

bridge; general contract to Peter Kiewit & Sons, Longview, Wash.

175 tons, Washington state Lewis county twin girder bridge; bids to Olympia, Feb. 10.

105 tons, state highway bridges, Fall River expressway, Bridgewater and Raynham, Mass.; bids Feb. 3, Boston.

PLATES . . .

PLATES PLACED

6000 tons, (classified project) Hanford Works, Wash., reported to Geneva-Columbia Steel Division, U. S. Steel Corp. and Kaiser Steel Corp.

RAILS, CARS . . .

LOCOMOTIVES PLACED

Missouri Pacific, 64 diesel units, placed as follows: seven 1600 hp A type and eleven 1600-hp B type freight units and one 1600 hp passenger unit, to American Locomotive-General Electric Companies, Schenectady, N. Y.; seven 1200 hp switching units to Baldwin-Lima-Hamilton Corp., Eddystone, Pa.; thirty-eight 1500 hp road switching units to Electro Motive Division, General Motors Corp., La Grange, Ill.

Monongahela, twelve 1200 hp diesel switching units, to Baldwin-Lima-Hamilton Corp., Ed- dystone, Pa.

Western Pacific, four 1500 hp road-switchers, to Electro Motive Division, General Motors Corp., La Grange, Ill.

RAILROAD CARS PLACED

Burlington Refrigerator Express Co., 100 fifty-ton meat refrigerator cars and 30 seven-ty-ton mechanical refrigerator cars, to own shops.

Erie railroad, 50 caboose cars, to Interna- tional Railway Car & Equipment Co.

Western Pacific, 102 flat cars to own Sacra- mento, Calif., shops.

RAILROAD CARS PENDING

Central of Georgia, 1000 fifty-ton box cars, bids asked.

Here's Efficient Welding

On C-F Positioners

When heavy, unwieldy weldments like these diesel crankcases can be quickly swung into any position so that every weld is made downhand—that's efficient welding!

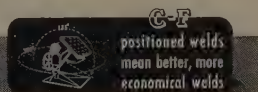
Welders spend more time welding—do better welding at lower cost when they work with C-F Positioners because these hand and/or power operated machines reduce positioning time to a minimum. Investigate the cost-saving advantages of C-F Positioners. They pay their way in any company.

Write for Bulletin WP26 — an illustrated circular detailing the Specific advantages of C-F Positioners.

CULLEN-FRIESTEDT CO.

1308 S. Kilbourne Ave., Chicago 23, Ill.

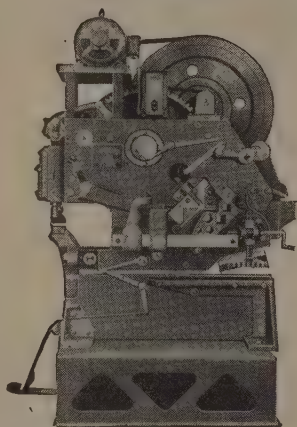
CULLEN-FRIESTEDT CO., CHICAGO 23, ILL.



WEBB STEELWORKER

The Newest Combination Punch & Shear
Designed For Diversified or Production Work

5 Complete Tools in ONE
2 WEEKS' DELIVERY



- 1 Punch for plate, bars or structurals.
- 2 Cuts angles and tees with straight or miter cut.
- 3 Cuts off round and square bars.
- 4 Shears plates and bars.
- 5 Coping or notching attachment.

For diversified shop work or high production output, this all-purpose machine is always in complete readiness to do any of above operations.

Write for Illustrated Literature and Prices Today.

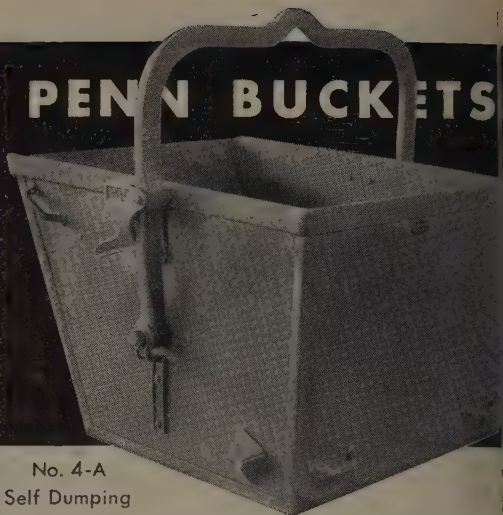
Mfrs. of PLATE BENDING ROLLS and INDUSTRIAL WEIGHING EQUIPMENT

THE **WEBB CORP.**

WEBB CITY, MO., U. S. A.

Since 1881

PENN BUCKETS



No. 4-A
Self Dumping

Careful balancing makes Penn Buckets self dumping when loaded and self righting when empty. Welded construction prevents "clinging" makes them empty easily and completely.

WRITE TODAY FOR NEW BULLETIN
DIMENSION SHEET AND PRICE LIST



PENN IRON WORKS, INC.
READING, PENNA.

WHEELING STEEL CORPORATION
WHEELING, WEST VIRGINIA

COP-R-LOY PIPE-SHEETS

Ductillite

THE MODERN TIN PLATE

LA BELLE CUT NAILS



Versatility counts in
HOT DIP GALVANIZING
any size or shape product, any size
order from the smallest to the largest

Excellent facilities
for pickling and
oiling

ENTERPRISE

GALVANIZING COMPANY

2525 E. Cumberland Street Philadelphia 25, Pa.

IF METALWORKING PLANTS ARE YOUR PROSPECTS . . .

STEEL can put you in touch with the important ones, those that do more than 92% of the industry's business. Tell the buyers and specifiers in these plants of the machines or materials you have for sale through an "Equipment—Materials" advertisement. For rates write STEEL, Penton Building, Cleveland 13, Ohio.

Here and There in Metalworking . . .

CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

San Joaquin Firm Starts Operations

San Joaquin Industries is the first plant in the new industrial district at Greater Bakersfield, Calif. The company has invested about \$110,000 setting up operations for the weaving and galvanizing of wire and production of other products.

Reed-Prentice Completes Factory

Reed-Prentice Corp., Worcester, Mass., completed a factory building which provides 23,000 sq ft of space for the assembly of large vertical milling machines. The firm also manufactures engine and toolroom vices, die casting machines, plastic injection molding presses and portable power chain saws.

Machinery Firm Moves Branch

Interstate Machinery Co. Inc., Chicago, moved its Philadelphia warehouse and office to A and Venango streets. Frank J. Lunney is manager of the branch.

Blaw-Knox Gets Plant Contract

Blaw-Knox Co., Pittsburgh, was awarded a \$40 million contract for construction of a chemical processing plant at the Hanford Works in the state of Washington. David F. Blaw is project manager.

4 Million Castings Plant Opened

The \$4 million plant of Engineered Castings Division, American Brake Shoe Co., Medina, N. Y., has been completed and test production has started.

Kent-Norlantic Ltd. Formed

Kent-Norlantic Ltd. was incorporated and established a plant and offices at Horner avenue, Toronto, Ont. Company replaces the former Canadian branch of George Kent Ltd., London, England. The new company will be engaged in the distribution and later in the assembly and manufacture of domestic and industrial water meters, flow meters, low measuring tubes for liquids and gases, and instruments and control equipment, similar to those manufactured by the parent company in England. Kent-Norlantic also will undertake the import and eventual manufacture of a new type of steam trap and accessories, special stud wrenches for the automotive and aircraft industries, as well as aircraft fuel meters and clear view screens

for marine, locomotive and snow-blower use, and a number of other products.

Formsprag Changes Sales Program

Formsprag Co., Detroit, terminated a five-year sales agreement with Morse Chain Co. for the distribution of Formsprag clutches. The company's own staff of sales engineers is now servicing the manufacturers of machinery, power transmission units, motor vehicles and airplanes using its clutches.

Demand for Silicone Products Gains

General-Electric Co., Schenectady, N. Y., placed in operation its expanded facilities for the manufacture of silicone materials at its chemical plant in Waterford, N. Y. The expansion project cost in excess of \$5 million. The company forecasts a tenfold increase in total industry demand for all silicone products by 1960.

Aronson Licenses British Firm

Aronson Machine Co., Arcade, N. Y., licensed Donald Ross & Partners Ltd., London, England, to manufacture and sell precision welding positioners under patents held by Aronson.

Air Reduction To Expand Plant

Capacity of Air Reduction Co.'s new calcium carbide plant at Calvert City, Ky., is to be doubled. The original plant, which is nearing completion, has a rated annual capacity of 142,500 tons of calcium carbide, says John A. Hill, president.

Steel Fabricating Plant Planned

General American Transportation Corp., Chicago, plans to construct a \$500,000 steel fabricating plant northwest of Provo, Utah, near the Geneva Works of Columbia-Geneva Steel Division, United States Steel Corp. The plant would produce tanks and other containers for petroleum products.

Niagara Abrasive Builds Plant

A \$150,000 plant to reprocess grinding wheel stubs has been erected in Lockport, N. Y., by Niagara Abrasive Co. Inc.

Titeflex Appoints Distributor

Pacific Airmotive Corp., Burbank, Calif., was named a distributor for all aviation products manufactured by Titeflex Inc., Newark, N. J. Products include seamed and seamless metal hose, ignition harnesses and ignition shielding.

Edward Valves Inc. Enlarges Plant

Edward Valves Inc. opened its new engineering building which is located next to its research laboratories in East Chicago, Ind.

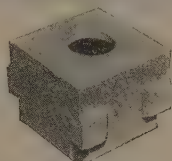
Stewart-Warner Buys U.S. Machine

Stewart-Warner Corp., Chicago, purchased all assets of U. S. Machine Corp., Lebanon, Ind. Acquisition of U. S. Machine, manufacturer of coal, oil and gas burning equipment, is the first major step in Stewart-Warner's intention to gain

EUREKA FIRE BRICK WORKS

Works: Mt. Braddock, Fayette Co., Pa.
Dunbar, Pa. . . . 4213

COVERED HOT TOP BRICK INGOT MOLD PLUGS



Sales Office

—132 S. Whitfield St.—
PITTSBURGH 6, PA. EM: 2-0614

WARD STEEL CO.

PROMPT WAREHOUSE SERVICE ONLY

Most Complete Stock in
America of

BLUE TEMPERED SPRING STEEL

We believe that the way to sell is to
carry a stock which permits satisfying
any reasonable warehouse demand.

87A Rindge Ave. Ext.

Phone UN 4-2460

CAMBRIDGE 40, MASS.

Branches:

3042-3058 W. 51st Street, CHICAGO, Ill.

Phone: Grove Hill 6-2600

Fenner Street, Providence, R. I.

Phone: Gospee 1-3573, 1-3573



Conspicuous Cogs

Looking like parts for a giant watch, these glimmering cog wheels will be assembled into Alco-GE diesel-electric locomotives. They were produced at General Electric Co.'s locomotive and car equipment department in Erie, Pa.

a major position in the home heating industry.

Atlas Chain Opens Office in South

Atlas Chain & Mfg. Co., Philadelphia, established southern regional offices at 3130 Third Ave., Birmingham. James M. Rooney will be in charge of the office.

Copes Vulcan Names Representatives

Copes-Vulcan Division, Continental Foundry & Machine Co., Erie, Pa., appointed as representatives for its products: Barnes Engineering Co., Indianapolis; Pacific Steam Control Co., Seattle; Cochrane Engineering Corp., Chicago; Gil Moore & Co., Los Angeles and San Francisco; W. E. Veenschoten, Birmingham.

Dahlstrom Moves To Larger Plant

Dahlstrom Machine Works Inc., Chicago, moved to 4227 W. Belmont Ave., that city. The new quarters provide facilities for 100 per cent increase in production of roll forming machines and other high-speed sheet metal fabricating equipment.

Engelberg Buys Machinery Firm

Engelberg Huller Co. Inc., Syracuse, N. Y., purchased Rome Machinery Sales & Engineering Co., Rome, N. Y., manufacturer of buffing and polishing lathes. Engelberg Huller will operate the facilities as Rome Machinery Division and will

move the manufacturing operations to its Syracuse plant.

Bell Buys Feldspar Plant

United Feldspar & Minerals Corp., a subsidiary of American Encaustic Tiling Co., Lansdale, Pa., sold its feldspar mine and grinding plant at Oxford, Me., to Bell Minerals Co. of Kentucky.

Erie Meters Expands on Coast

Erie Meters System Co., Erie, Pa., established two company-operated sales offices on the West Coast. Expansion in the West could, eventually, mean the addition of a second shift at the Erie plant.

Electrical Equipment Plant Planned

Crompton Parkinson Co., London, England, acquired a building site near Brantford, Ont., where it will erect a plant for the manufacture of electrical equipment. Cost of the plant is estimated at \$150,000.

Razor Firm Dissolves Subsidiary

American Safety Razor Corp., Brooklyn, N. Y., is operating the Kingsbury Ordnance plant directly through its Kingsbury Division. The corporation operated the plant formerly through its wholly-owned subsidiary, American Safety Razor-

RAILS NEW and RELAYING

Your exact trackage needs filled "Faster From Foster" Track Tools & Accessories are properly matched and fabricated to meet all requirements and shipped from a reliable source.



"FASTER from FOSTER"

RENT STEEL SHEET PILING

All Lengths, Sections, all standard makes your job requires. Also Rent Pile Hammers, Pile Extractors.

TRACK ACCESSORIES • PIPE • WIRE ROPE

LB FOSTER co.

Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

transformers built to your specifications

Take advantage of our more than 40 years' experience in manufacturing and re-building industrial transformers. Complete satisfaction guaranteed.

Send us your specifications for prompt quotation

"TRANSFORMER HEADQUARTERS"
Manufactured - Bought - Sold - Repaired

THE ELECTRIC SERVICE CO., INC.
5315 Hetzel St., Cincinnati 27, Ohio

FOR SALE

- 1—MEDART TURNING CRUSHER
Similar to #1700 AMERICAN, complete with Feed Hopper and Motor. REBUILT.
- 1—RUBBER LINED STEEL TANK
5'-0" Wide, 4'-0" High, 32'-0" Long. This tank is absolutely like NEW. Fully equipped with Belke Conveyor, Motors, and controls. Used only 3 months.
- 1—STEEL TANK 3'-6" Wide x 4'-0" High x 32'-0" Long.
- 1—5000 GAL. OIL STORAGE TANK

IMMEDIATE DELIVERY

NORTHERN INDIANA STEEL SUPPLY CO.

MICHIGAN CITY, IND.

Phone 3-3241



10 to 12 ft. length
ALL METALS
Also Screw Machine Products to Order
EASTERN
Machine Screw Corp
New Haven, Conn
Makers of H & C Die Heads

FOR SALE

- Brand new PANGBORN ROTOBlast MACHINE #4307, 440 Volt, 3 phase. Equipped with 6 auxiliary tables, abrasive separator, elevator, #140 type RE rotoblast unit, Style C and size 10 abrasive reclaimers, size 220 CK dust collector and spare parts.
- NATIONAL #3 HIGH SPEED FORGING MAXIPRESS, 440 Volt, 3 phase. Used for 1 month's production. Equipment includes complete set of upper and lower bolster plates with hydraulic gripping mechanism.
- Located in Mid-South. For complete information, write Box 652, STEEL, Penton Bldg., Cleveland 13, Ohio.

PRACTICALLY NEW
LINDBERG 8 KW ELECTRIC FURNACE
Serial No. 7711. Model 1014-E15
1 Phase, 60 Cycle, 54 Volts, 2500° F.
Complete with Motor, Blower, Controls
Brand New 8 KW LINDBERG Transformer
1/60/440 to 54 Volts
WINSTON MACHINERY COMPANY, INC.
326 West Ohio St., Indianapolis 2, Ind.

WESTINGHOUSE ENDOGAS GENERATOR

Serial No. 10049-233. Practically New
Capacity 1800 Cubic Feet
Complete with Tank, Permitit, Ranarex Controls and Specific Gravity Meter
WINSTON MACHINERY COMPANY, INC.
326 West Ohio St., Indianapolis 2, Ind.

FOR SALE

3'-8" x 12" United 2-High Cold Mills with Combination Pinion Stands and Gear Sets, D. C. Motor Drives; Coilers.

FRANK B. FOSTER, INC.

2220 Oliver Building Pittsburgh 22, Pa.
Cable Address "Foster Pittsburgh"

OPEN TIME 300 TON PRESS BRAKE

Will bend 20' x 1/4" to 6' x 3/4" PL
ST. JOSEPH STRUCTURAL STEEL CO.
Box 68 Sta. "A" St. Joseph, Mo

RAILROAD EQUIPMENT—FOR SALE

USED

AS IS

RECONDITIONED

STANDARD GAUGE FREIGHT CARS

Box, Double Sheathed, 50-Ton Capacity

Box, Single Sheathed, 50-Ton

Gondolas, Composite, or All Steel 50-Ton and 70-Ton

Hoppers, Twin, All-Steel, 50-Ton, Cross Dump

Tank, 3,000-Gallon, High Pressure

Tank, 8,000-Gallon, Coiled and Non-Coiled

Hoppers, All-Steel, 70-ton, Cross Dump

EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

STANDARD GAUGE AIR DUMP CARS

Side Dump, 20-Yd., 40-Ton, Lift Door

End Dump, 20-Yd., 50-Ton Drop Door

Side Dump, 30-Yd., 50-TON, DROP DOOR

STANDARD GAUGE DIESEL-ELECTRIC ROAD SWITCHING LOCOMOTIVE

300 H.P., 70-Ton, Type 0-4-4-0

Send us your inquiries

WE BUY FREIGHT CARS FOR DISMANTLING

IRON & STEEL PRODUCTS, INC.

REPAIR PARTS

For

All Types of

Freight Cars

General Office

13462 S. Brainard Ave.

Chicago 33, Illinois

Phone: BAyport 1-3456

New York Office

50-D. Church Street

New York 7, N. Y.

Phone: BEekman 3-8230

"ANYTHING containing IRON or STEEL"

CABOOSE CARS

Eight Wheel, Cupola Type

OTHER EQUIPMENT

Jordan Spreader—BUILT 1937

Locomotive Cranes

Overhead Cranes

Railroad Track Scales

Send us your offerings

STORAGE TANKS

6,000 Gallon

8,000 Gallon

10,000 Gallon

CLASSIFIED ADVERTISING

Help Wanted

SALES REPRESENTATIVE

WITH SOME ENGINEERING BACKGROUND AND FAMILIAR WITH STRUCTURAL STEEL FABRICATING AND ALLIED INDUSTRIES FOR MID-WEST TERRITORY. SALARY, EXPENSES AND COMMISSION. GIVE FULL INFORMATION—AGE AND QUALIFICATIONS. CORRESPONDENCE CONFIDENTIAL. WRITE BOX 626, STEEL, PENTON BLDG., CLEVELAND 13, OHIO.

STEEL SALESMAN: BAR MILL PRODUCTS. Territory Atlantic seaboard principally southern States. Salary and expenses with added incentive compensation. Reply complete resume stating salary expected. Write Box 643, STEEL, Penton Bldg., Cleveland 13, Ohio.

SHOP SUPERINTENDENT

For Structural Steel and Miscellaneous Iron Shop located in the South. Excellent opportunity for a man experienced in supervising steel fabrication for buildings. Submit complete information relative to past experience, age, qualifications, and salary expected in first reply. Address Box 649, STEEL, Penton Bldg., Cleveland 13, Ohio.

Positions Wanted

PLANT MANAGER: M.I.T. GRADUATE WITH 25 years' experience in Plant Management, including Production planning, machine and plant loading, Material and tool control, quality control, purchasing, incentives, standard costs, variable budgets, overhead analysis and break-even charts, job evaluation, supervisory responsibility chart and labor relations. Capable administrator with excellent record. Write Box 632, STEEL, Penton Bldg., Cleveland 13, Ohio.

FACTORY MANAGER—Age 34 with experience as Assistant Factory Manager, Chief Engineer, and Assistant Superintendent in two medium sized manufacturing plants. Graduate Mechanical Engineer. Registered (by exam.) State of Illinois. Write Box 656, STEEL, Penton Bldg., Cleveland 13, Ohio.

WE CAN HELP YOU TO CONTACT high calibre men to fill specific jobs you have in mind—

Readers of STEEL include men of wide training and experience in the various branches of the metalworking industry.

When you have an opportunity to offer, use the Help Wanted columns of STEEL.

Accounts Wanted

MANUFACTURERS AGENT technically trained, located in Detroit, with successful sales background in heat treating field desires quality line of heat treating equipment, heat resisting castings or supplies. Write Box 654, STEEL, Penton Bldg., Cleveland 13, Ohio.

MANUFACTURER'S AGENT

If you have anything to sell to metalworking industry in Milwaukee and Eastern Wisconsin, here's your man with almost twenty years in the territory. Steel mill background. Would welcome mill or warehouse account in sheets and/or bars, plates, tubing or parts. Address Box 651, STEEL, Penton Bldg., Cleveland 13, Ohio.

Employment Service

SALARIED POSITIONS \$3,500 TO \$35,000. WE offer the original personal employment service (established 43 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC., 110 Dun Bldg., Buffalo 2, N. Y.

MECHANICAL DESIGN ENGINEERS

Positions available for Design Engineers with experience in the design of mechanical equipment used in Blast Furnaces, Open Hearth Furnaces, Sintering Plants, Rolling Mills and other auxiliary plants for the processing and production of iron and steel. These men must have experience in Steel Plant layout as well as the design of equipment involved. These are permanent positions with excellent advancement opportunities for qualified Engineers who are interested in greater accomplishment.

If you qualify and are interested in advancing with a continually expanding organization, write, giving complete resume of positions held and duties performed, education, age, salary desired, etc., to:

ARTHUR G. MCKEE & COMPANY
2300 Chester Avenue
Cleveland 1, Ohio

SALES AGENTS

WANTED

To sell wiping cloths, representing reliable packer. Write and explain full details of present lines, organizations and territories covered.

Box 653, STEEL,

Penton Bldg. Cleveland 13, Ohio

WANTED—aggressive, imaginative executive to head small steel casting company in Southern city; must have some electric furnace and metallurgical experience; attractive salary, bonus and stock option may be arranged.

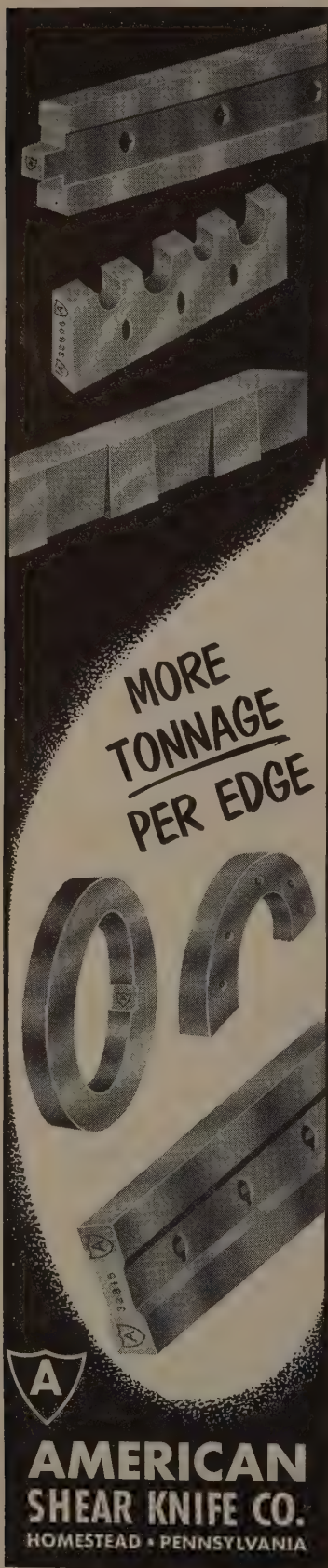
Write Box 655, STEEL,

Penton Bldg. Cleveland 13, Ohio

ROLLING MILL SUPERINTENDENT

New, rapidly expanding steel mill now in operation ready to fill position of Rolling Mill Superintendent. Electric furnace, thirty ton capacity, producing carbon and alloy grades. 18" and 10" rolling mills (9 stands designed for further expansion). Require top grade full operational experience in rolling and conditioning all grades. Must know equipment, roll design and roll shop. Salary with production incentive open, consistent with experience and ability. This is top position with exceptional future. Age limit 50 years. Answer with full details of experience and references. Include personal photograph.

Frank V. Seidelhuber, President
SEIDELHUBER STEEL
ROLLING MILL CORP.
5280 West Marginal Way
Seattle 6, Washington



**MORE
TONNAGE
PER EDGE**

A

**AMERICAN
SHEAR KNIFE CO.**
HOMESTEAD • PENNSYLVANIA



Swords Into Plowshares—a Recent Version

Adapted from the famous Army "Bazooka," a "jet taper" with an explosive head is used to tap an open-hearth furnace for the pouring of Inland Steel Co. 80 millionth ton of steel at Indiana Harbor, Ind. The taper, fired electrically, blows a clean hole through the clay plug, eliminating hand ramming.

Kingsbury Corp., which is being dissolved.

Bendix Computer Division Formed

Bendix Aviation Corp., Detroit, organized the Bendix Computer Division with headquarters in Hawthorne, Calif. E. Palmer Nicholls, vice president of the Bendix Pacific Division, is also general manager of the Computer Division.

American Machine Buys Firm

Niagara Filter Corp., Buffalo, maker of industrial filters, has been sold to American Machine & Metals Co. Inc., East Moline, Ill. Niagara Filter will be operated as a division of American Machine & Metals. The filter business will be transferred gradually to East Moline, Ill. A new firm will be formed to manufacture other lines in the Buffalo plant.

Micro Division Opens Branch

A new engineering service and sales office has been established in Rochester, N. Y., by Micro Division, Minneapolis-Honeywell Regulator Co., Minneapolis. Dale S. McQuiston Jr. is the regional manager.

GM of Canada Enlarges Warehouse

General Motors of Canada is adding five acres of floor space to its central parts warehouse in Oshawa, Ont. The warehouse was completed in 1951 and is already outgrown. Mr. Wecker, president, forecast higher

production schedules during 1953 because of the 17½ acre truck plant now being rushed to completion. The new plant, with a capacity of 50,000 trucks annually, will be in operation by June.

Parker Appliance Names Agent

Parker Appliance Co., Cleveland, appointed Standard Brass & Mfg. Co., Shreveport, La., as a distributor of its industrial tube fittings and tube fabricating tools.

Emsco Derrick Changes Name

Emsco Derrick & Equipment Co. Los Angeles, changed its name to Emsco Mfg. Co.

Tool Engineers Charter New Chapter

American Society of Tool Engineers, Detroit, chartered its 104th chapter in Joliet, Ill.

Welding Sales Corp. Moves

Welding Sales Corp., distributor of General Electric welding equipment, moved into larger quarters in Kenilworth, N. J. The company formerly was located in Newark, N. J.

Philco Corp. Plans Expansion

Philco Corp., Philadelphia, will build a \$4 million plant at Connersville, Ind., which will increase its refrigerator production by 50 per cent and its home freezer building capacity by 100 per cent. The new plant is scheduled to go into operation by the end of the year.

Advertising Index

Allegheny Ludlum Steel Corporation	35
Allegheny Bradley Co.	45, 46
Allicke & Co.	42
Aluminum Import Corporation	32
American Brake Shoe Co., National Bearing Division	146
American Chain & Cable, Page Steel & Wire Division	150
American Nickeloid Co.	18
American Shear Knife Co.	194
American Zinc, Lead & Smelting Co.	178
American Zinc Sales Co.	178
Anderson Wire & Cable Co.	27
Automatic Sprinkler Corporation of America	147
Baker & Wilcox Co., The, Refractories Division	113
Baker J. E., Co., The	111
Baylor Forge Co.	186
Baystate Abrasive Products Co.	40
Belmont Iron Works, The	188
Belmont Steel Co.	1
Blair Steel Foundry & Machine Co.	134
Bliss R. W., Inc.	193
Bliss E. W., Co.	14, 15
Boyd-Jarner Corporation, Ingersoll Steel Division	186
Boyd Gear Works	26
Bruck Chucking Grinder Co.	30, 31
Buck Forge Co.	50
Bull Co., The	127, 128
Carter Steel Co., The	61
Cecil Steel & Wire Co.	13
Chey Electric Co.	123
Cincinnati Brass & Copper Co.	161
Cincinnati Milling Machine Co., The	79
Citizens Service Oil Co.	131
Clayton Crane & Engineering Co., The	172
Clayton Steel Tool Co., The	188
Colorado Fuel & Iron Corporation, The, Wick- Spencer Steel Division	58
Commercial Contracting Corporation	150
Corn Alloy Foundry Co., The	17
Crosby Tool Co.	184
Crow Co., The	95
Cummins Steel Company of America	47
Cummins-Friedstedt Co.	189
Deg Machine Co.	125
Dodge Corporation	20
Dumont, E. I., de Nemours & Co., Inc.	25
Dunn Machine Screw Corp., The	184, 192
Dunham Kodak Co., Industrial Optical Sales Division	153
Dunn Car & Construction Co.	187
Dunn Service Co., Inc., The	192
Dynisco Metallurgical Co., A Division of Union Carbide & Carbon Corporation	48
Empire Galvanizing Co.	190
End Crane & Hoist Co., The	195
Ena Fire Brick Works	191
Field Manufacturing Co.	183
Fish-Birmingham Co., Inc.	44
Federal Products Corporation	12
Federal Corporation	188
Federal Cap & Set Screw Co., The	154
Federal Bros. Gear & Machine Corporation	53
Fisher, Frank B., Inc.	192
Fisher, L. B., Co.	192

Continued on following page

over **90%**
OF YOUR
MATERIAL HANDLING
REQUIREMENTS

— can be met with
STANDARD EUCLID CRANES,

whether they are put to Special or General Purpose use. Standard Euclid Cranes are available in capacities of 3, 5, 7-1/2, 10, 15, 20 and 25 tons in various spans.

All detail parts are standardized and jig machined to assure interchangeability.

THE EUCLID CRANE & HOIST COMPANY
1365 CHARDON ROAD, EUCLID, OHIO

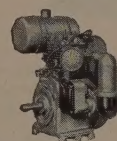
High grade, wide face, coarse pitch gearing.

Shafts short and heavy to withstand stress.

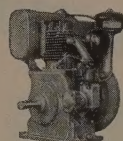
Anti-friction bearings throughout.



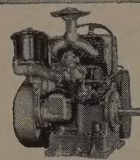
Most Specified...
Most Used...
Most H.P. Hours...
WISCONSIN
HEAVY-DUTY
Air-Cooled
ENGINES



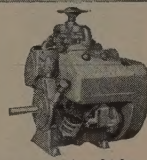
3 to 6 hp.



6 to 9 hp.



7 to 14 1/2 hp.



15 to 36 hp.

Power
to Fit the
Machine

Power
to Fit the
Job

Specified as integral power units by more than 500 original equipment manufacturers...

Delivering dependable, efficient power on a greater variety of service applications than all other makes of engines combined, in a 3 to 36 hp. range...

Supplying Most H.P. Hours of heavy-duty on-the-job power in all weather, all climates...

Constantly demonstrating the outstanding

efficiency and trouble-free dependability of AIR-COOLING...

These are some of the factors worth considering in the selection of engine power for YOUR equipment. Detailed engineering data and descriptive literature on request.

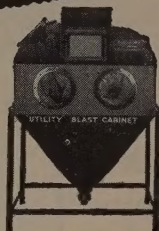


WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

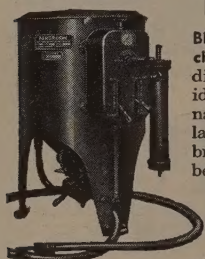
Here's BIG NEWS on Blast Cleaning Dust Control Precision Finishing

BLAST CLEANING!

Blast Cleaning Cabinet cleans rust, grime, dirt, paint, etc., from metal parts. Produces a smooth surface on pieces up to 60" x 36". Models from \$319.00 and up.

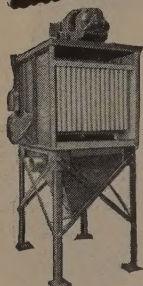


Blast Cleaning Machine removes rust, dirt, scale, etc., is ideal for maintenance work. Cleans large objects such as bridges, tanks, etc., before painting. Six sizes, portable or stationary from \$170.00 and up.



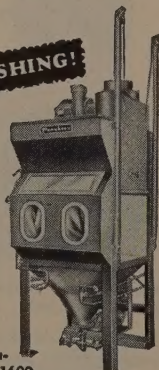
DUST COLLECTING!

Unit Dust Collector stops dust at source, minimizes machine wear and tear, reduces housekeeping and maintenance costs. Solves many grinding and polishing nuisances. Models from \$286.00 and up.



PRECISION FINISHING!

Hydro-Finish Cabinet uses liquid blast to polish, clean and finish molds, dies, etc. Removes scale, discoloration with minimum hand work. Holds tolerances to .0001". Models from \$1410.00 and up.



Write for details on these machines to: Pangborn Corp., 1600 Pangborn Blvd., Hagerstown, Md.

Pangborn

Look to Pangborn for the latest developments in Blast Cleaning and Dust Control Equipment

Advertising Index

Concluded from preceding page

Gardner Machine Co.	11	Pannier Corporation, The	6
Garlock Packing Co., The	181	Parker-Kalon Corporation	116
Gas Machinery Co., The	132	Penn Iron Works, Inc.	90
General Blasting Corporation	158	Philadelphia Gear Works, Inc.	33
General Refractories Co.	36, 37	Pittsburgh Gear Co.	26
Geometric Stamping Co.	142	Pittsburgh Steel Co., Thomas Strip Division.	57
Gray Iron Founders' Society, Inc.	43	Platecoil Division, Kold-Hold Manufacturing Co.	8
Great Lakes Steel Corporation	84	Pollock, William B., Co., The	9
		Poole Foundry & Machine Co.	88
Hallden Machine Co., The	156		
Hannifin Corporation	41	Ready-Power Co., The	24
Hansen Manufacturing Co., The	159	Reliance Electric & Engineering Co.	5
Hanson-Van Winkle-Munning Co.	54	Republic Steel Corporation	51
Hevi Duty Electric Co.	136, 137	Reynolds Wire Division, National-Standard Co.	19
Horsburgh & Scott Co., The	144	Rockford Machine Tool Co.	39
Hubbard, M. D., Spring Co.	188	Rogers, Dayton, Manufacturing Co.	86
		Russell, Burdall & Ward Bolt & Nut Co.	88
Indiana Gear Works, Inc.	160	Rust Furnace Co.	09
Industrial Brownhoist Corporation	151	Ryerson, Joseph T., & Son, Inc.	62
Industrial Products Suppliers	186		
Ingersoll-Rand	69	St. Joseph Structural Steel Co.	92
Ingersoll Steel Division, Borg-Warner Corporation	186	Security Locknut Corporation	29
Inland Steel Co.	70	Sharon Steel Corporation	7
International Nickel Co., Inc., The	66	Silent Hoist & Crane Co.	85
Iron & Steel Products, Inc.	193	Simmons Machine Tool Corporation	60
		Simonds Saw & Steel Co.	39
Jones & Lamson Machine Co.	34	Sivyer Steel Casting Co.	28
Kearney & Trecker Corp.	97	Solar Steel Corporation	74
Keystone Steel & Wire Co.	10	Speedi-Dri Corp.	35
Kinnear Manufacturing Co., The	140	Standard Steel Spring Co.	9
Kirk & Blum Manufacturing Co., The	155	Sterling Bolt Co.	55
Kold-Hold Manufacturing Co., Platecoil Division	162	Stevens, Frederic B., Inc.	49
Korhmel Steel & Aluminum Co. Inside Front Cover		Sun Oil Co.	92
Lavallee & Ide, Inc.	91	Thomas Machine Manufacturing Co.	59
Lincoln Electric Co., The	120	Thomas Strip Division, Pittsburgh Steel Co.	157
Link-Belt Co.	33	Timken Roller Bearing Co., The	Back
Lodding, Inc.	130	Torrington Co., The	177
Lucas Machine Division, The New Britain Machine Co.	21, 22, 23, 24	Towmotor Corporation	165
Master Electric Co., The	Inside Back Cover	Union Carbide & Carbon Corporation, Electro Metallurgical Co.	48
Meehanite Metal Corporation	141	United Engineering & Foundry Co.	145
Mesta Machine Co.	80	United Screw & Bolt Corporation	65
Micromatic Hone Corporation	29	United States Steel Corp., Subsidiaries	52
Minneapolis-Honeywell Regulator Co., Industrial Division	19	United States Steel Supply Division, United States Steel Corporation	140
Moline Tool Co.	188	Universal Atlas Cement Co.	5
Mueller Brass Co.	152		
		Veeder-Root, Inc.	14
National Bearing Division, American Brake Shoe Co.	146		
National Machinery Co.	38	Ward Steel Co.	191
National-Standard Co., Reynolds Wire Division	119	Webb Corp., The	190
National Steel Corporation	84	Wesche, B. A., Electric Co., The	184
New Britain-Gridley Machine Division, The New Britain Machine Co.	21, 22, 23, 24	Wheeling Steel Corporation	190
New Britain Machine Co., The	21, 22, 23, 24	Wheland Co., The	56
New Jersey Zinc Co., The	87	Whitehead Stamping Co.	180
		Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corporation	140
Ohio Crankshaft Co., The	2	Willson Products, Inc.	138
Ohio Knife Co., The	143	Wisconsin Motor Corporation	190
Ohio Locomotive Crane Co., The	188		
O'Neil-Irwin Manufacturing Co.	16	Yale & Towne Manufacturing Co., The	5
Osborn Manufacturing Co., The	3	Youngstown Foundry & Machine Co., The	178
Owen Bucket Co., The	184		
		Zeh & Hahnemann Co.	180
Page Steel & Wire Division, American Chain & Cable	150		
Pangborn Corporation	196		

Table of Contents, Page 5

Classified Advertising Pages 192, 193

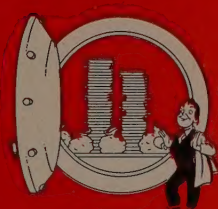
SIMPLIFIES DESIGN PROBLEMS
Your designs can ring the bell every time when you can use exactly the right drive for each job.



HELPS MANPOWER HEADACHES

You can save man-hours because there is only one unit to buy, one unit to handle, one unit to install.

SAVES YOUR MONEY
Their original installed cost, the power operating cost, and the maintenance cost is less.



You get the extra strength and reliability of the ringbone gears at no increase in cost to you.



HORSEPOWER
125
and smaller

You're free to select from an enormous range of ratings with reduction ratios ranging up to 432:1.

IMPROVES APPEARANCE

Let you to improve the appearance and convenience of equipment with compact in-line built gearmotors.



PROVEN RELIABILITY

Their durability and stamina have been proven with millions of hours of service all over the world.



available in combinations of all these types

Flange Mounting
Belt Drive
Right Angle Gearhead
Combination Gearhead
SQUIRREL CAGE
EXPLOSION PROOF
DIRECT CURRENT
Half Gearhead
Multi-Speed
Splash Proof
Totally Enclosed
Belt Drive
Right Angle Gearhead
Combination Gearhead
SQUIRREL CAGE

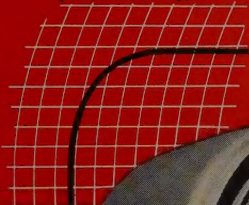
COMPACT

Integral compact design saves space, saves money, improves appearance.



HIGH EFFICIENCY

More efficient than other types of slow speed drives with only 2% power loss in each stage of reduction in parallel shaft type.



SAFE

Fully enclosed unit eliminates danger of injury to workmen.



GEARMOTORS

can really help you!

New mill flattens wire at 1200 feet a minute ...using 40 TIMKEN® bearings

THIS 2-stand tandem wire flattening mill flattens and winds copper wire at 1200 feet a minute. The mill, manufactured by The Waterbury Farrel Foundry and Machine Company, is complete with power driven edger and winder.

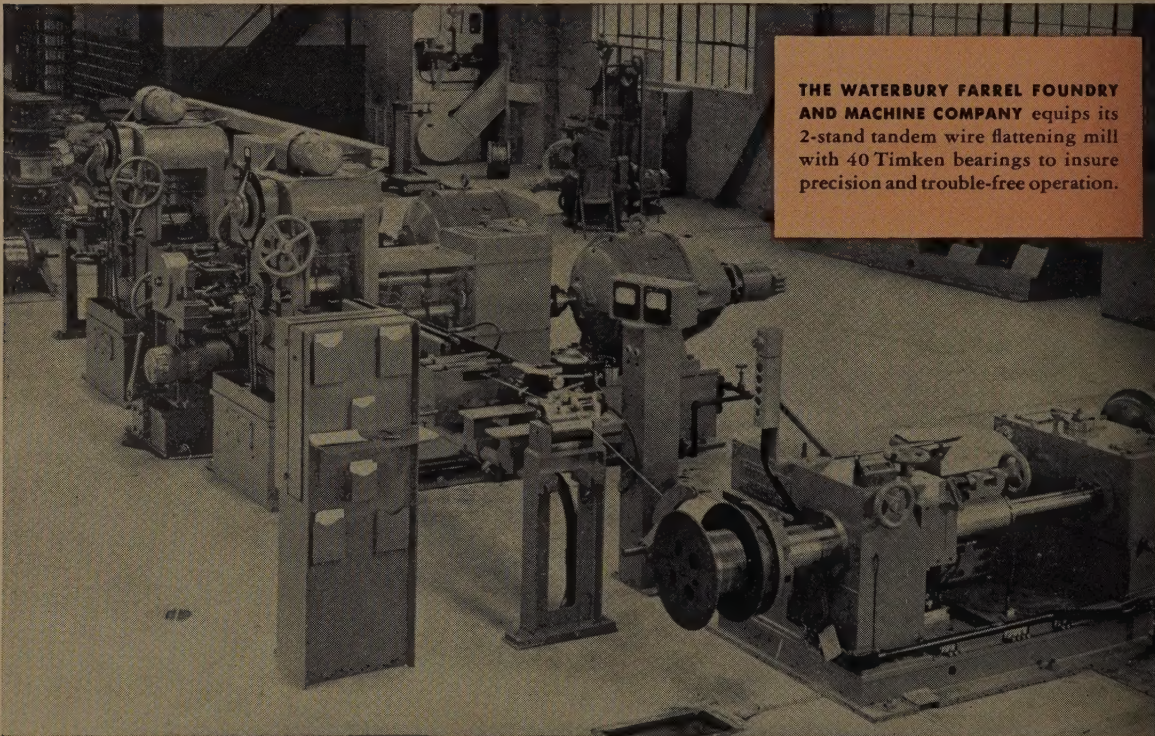
One way Waterbury Farrel insures precision and trouble-free operation in this mill is by mounting vital moving parts on Timken® tapered roller bearings—a total of 40 on the roll necks and drive in the first mill stand, finishing mill stand, edger and winder.

Because of their tapered construction, Timken bearings take both radial and thrust loads in any combination. They hold gears and shafts in the mill in proper alignment, reducing wear. The true rolling motion and smooth surface finish of Timken bearing rollers and races virtually eliminate friction. Wear within the bearings themselves is negligible. And because Timken bearings make closures more effective, dust and dirt can be kept out—lubricant kept in. Mill maintenance is minimized.

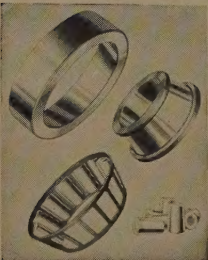
No other bearings can give you all the advantages you get with Timken bearings. Make sure you have them in the machines you build or buy. Always look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



THE WATERBURY FARREL FOUNDRY AND MACHINE COMPANY equips its 2-stand tandem wire flattening mill with 40 Timken bearings to insure precision and trouble-free operation.

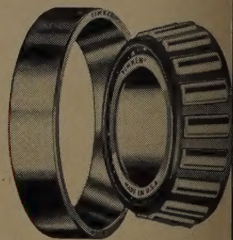


DESIGN LEADERSHIP

The first Timken tapered roller bearing was produced in 1898. Since then the one-piece multiple perforated cage, wide area contact between roller ends and ribs, and every other important tapered roller bearing improvement have been introduced by The Timken Roller Bearing Company.

The Timken Company leads in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis steels.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 